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SOCIAL AND OCCUPATIONAL FACTORS IN THE AETIOLOGY OF SKIN CANCER

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The causes of human cancer, apart from the influence of specific carcinogenic agents and of chemical and physical factors the components of which may or may not be carcinogenic, are to be sought broadly in heredity, age, sex, and certain social and occupational influences. Berenblum (1944), although reintroducing the word "irritant" in a sense in which it is not usually employed, has discussed the two questions: (1) Are all irritants potentially carcinogenic? and (2) Are all carcinogenic agents irritants? To the first he concluded that the answer is "No"; to the second, that all direct carcinogens are irritants. He also concluded that non-carcinogenic irritants may facilitate the progress of a pre-neoplastic lesion to cancer.

There is strong evidence for genetic predisposition in the case of cancer originating in polyposis of the colon, and Jacobsen (1946) has lately added to existing information important material bearing upon a similar predisposition in the case of breast cancer. While it is not strictly correct to speak of cancer itself as heritable, the existence of a cancer diathesis may be held to be established, at any rate in respect of certain histological types and anatomical sites, in man. It has also been experimentally demonstrated for mammary cancer in mouse strains.

Age in man may be assumed to lend its contribution partly through longer exposure to effective stimuli and partly, perhaps, through a changing reactivity of tissues dependent upon hormonic or other chemical influence. Sex, through local injury or inflammation (as in the case of cancer of the cervix), or through hormonal influence (as in the case of ovarian, breast, and prostatic cancer), is clearly an important factor. More remotely, sex influences may also reflect social changes as these impinge upon the marriage rate, fertility, and parity.

The Registrar-General's standardized mortality comparisons (1930–2) suggest that lower socio-economic status predisposes in some way to cancers of the upper alimentary tract and the skin, both of which give a death rate in social class V approximately twice that obtaining in social class I, with a steady gradient in the intervening classes.

Skin cancers, although not numerous in the population by comparison, for instance, with those affecting the breast and alimentary tract, have this advantage—that they can be diagnosed with greater certainty and that there can be little doubt about the accuracy of certifications. The skin, considered as an external organ exposed to recognizable environmental stresses of a chemical or physical kind which vary appreciably both in duration and in degree with social circumstance and nature of employment, may thus prove particularly worthy of investigation from the point of view of cancer aetiology.

It has long been accepted that soot, pitch, tar, and shale oil give rise to occupational cancers of the skin; that *x*-ray burns and prolonged thermal injury can lead to cancerous changes; that chronic ulcers and arsenical and other forms of dermatitis may end in malignant degeneration; and that the starting-points of skin cancers include warts and moles and other initially innocent tumours. But cancer of the skin can also arrive independently of these influences. If social factors can be shown to have importance on the basis of statistical correlations, and if skin cancer (in common with a number of other diseases) is found to discriminate against the less privileged classes, then the most likely local factors would seem to be exposure to atmospheric dirt—whether through grimy occupations or lack of bathing facilities, or both—and, in the case of some other occupations, exposure to the ultra-violet radiations of direct sunlight. This, according to Molesworth (1927), with his extensive Australian experience, may be an important factor in outdoor workers, and especially in those whose skins do not acquire the protection due to tanning. In Australia, as contrasted with England, lupus is very rare and epithelioma of exposed sites very common. If dirt is an important factor, the sites of cancer might be expected to include those in which it is most apt to lodge. The listed sites for skin cancer do, in fact, include the external ear, the canthus of the eye, the umbilicus, the anus, the scalp, and the neck. These sites, like the scrotum, are apt to be more infrequently and ineffectively washed than some other parts, and their anatomical structure encourages the deposition and retention of atmospheric soot or other dirt. It must be noted that the face as a whole has been recorded in some mortality tables (see below) as showing a much higher incidence of skin cancer than other sites; the ear has second place. These parts are exposed to grime and heat in some occupations, but the face is certainly more likely than the rest of the body surface to be subject to daily washing. On the other hand, it is more exposed to the ultra-violet rays of sunlight than any other part. In considering aetiological factors in skin cancer due regard must be paid to the type of cancer as well as to its site. It would be unreasonable to suggest that social or occupational factors play a major part in melanomata originating in pigmented moles or in Kaposi's idiopathic haemorrhagic sarcoma. They might, on the other hand, have a significant association with basal or squamous-celled epitheliomata. Unfortunately—lacking, as we do at present, any

readily available morbidity figures—it is difficult to discover the incidence of the several types of skin cancer or their incidence in relation to site. The best that can be done, therefore, is to consider the mortality of skin cancers as a whole, and their sites where possible, and to see whether any suggestive correlations can be effected with such factors as sex, geography, social class, or occupation. We are here concerned with statistical material drawn from the British Isles only.

Scrotal Cancer

In a very interesting paper on the social distribution of cancer of the scrotum and penis, E. L. and N. M. Kennaway (1946) indicated that cancer of the scrotum, unlike cancer of the penis, has (quite apart from the occupational cases) a definite social class distribution, and that its mortality, and presumably its incidence, should be considerably reduced by the elimination of causal social factors. It would even seem proper to infer from the evidence presented that if all classes could enjoy the advantages experienced by social class I (Registrar-General's classification)—whether in respect of freedom from cutaneous irritants or of facilities for frequent bathing, or both—scrotal cancer would disappear. The suggestion was made in an earlier paper by E. L. Kennaway (1925) that atmospheric soot may be the operative factor and that all town dwellers are in some very slight degree liable to chimney-sweep's cancer. The scrotum and penis, as contiguous parts and both protected from sunlight, supply particularly convincing data. Possibly the rugose character of the scrotal integument facilitates the lodgment of grime in undue degree.

In view of the importance of these conclusions it was deemed of interest to examine the statistics of skin cancer generally, excluding the penile and scrotal forms, to measure the magnitude of the problem, the secular trend, the geographical incidence, and the possible relationship between cutaneous cancer and social and environmental factors.

The data utilized in this study were obtained from the Annual Reports of the Registrar-General for the United Kingdom and Eire, and particularly from the Decennial Supplement, 1931, containing occupational mortality tables for England and Wales. For the most recent statistics of the disease in England and Wales we would like to thank Dr. Percy Stocks, who supplied us with the unpublished data of the age incidence for the years 1942 and 1943.

Incidence of Skin Cancer

The mortality due to skin cancer is not numerically unimportant, since in 1943 it caused 1,094 deaths—626 were in males and 468 in females.

(a) Secular Trend.—The secular trend of the age-specific death rates has recently been described by Stocks and Mackay (1946) for the period 1911–44, and they stated that the skin cancer mortality began to decline at ages over 55 about 1931. They also presented data in the form of a Comparative Mortality Index (1938 basis) for each year between 1933 and 1944 for males and females separately, and their results are reproduced in Table I. In stressing the merits of this new method of measurement Stocks and Mackay state: "This comparative mortality index shows at a glance how the real rate of mortality at all ages compares with that in the year 1938 taken as a basis. Furthermore, by simply dividing one index by another the proportionate increase or decrease in any one year compared with any other year can be arrived at." The figures in the table indicate that a satisfactory improvement has occurred in recent years, and it is reflected in the fact that the average C.M.I. both for males and for females in the two years 1943–4 was 15% less than the corresponding values in 1933–4.

TABLE I.—*Comparative Mortality Index (1938 Basis), Cancer of Skin (Scrotum excepted)*

Year	Male	Female	Year	Male	Female
1933	1·032	1·078	1939	0·942	0·873
1934	1·021	0·965	1940	0·932	0·896
1935	0·960	0·986	1941	0·945	0·850
1936	1·024	0·989	1942	0·849	0·890
1937	0·997	0·992	1943	0·938	0·881
1938	1·000	1·000	1944	0·812	0·860

(b) Geographical.—There is a distinct geographical picture in the mortality from skin cancer in the United Kingdom and Eire, and since each country classifies its statistics according to a uniform standard—namely, No. 53 of the Detailed International List of Causes of Death (Fifth Revision, 1938)—the variance in their statistical experience must be ascribed to the influence of some localized causal factor rather than to any divergence in classification. Here it may be of interest to specify what is officially included under the heading No. 53 of the International List. The following is the specification according to the manual published in 1940:

* Cancer of abdominal wall
* " " anus
" " auricle of ear
" " buttock
" " canthus
" " cheek (external)
" " ear
" " face
" " nose
" " perineum
" " pinna
Cancer of scalp
" " umbilicus
Epithelioma of neck
* Malignant dermatitis
* Pitch cancer
Rodent ulcer (site stated)
* Rodent ulcer (site not stated)
* Tar cancer
* *X*-ray cancer
* Epithelioma (unqualified)

*Denotes that the cause of death is referred by the Registrar-General for England and Wales to the certifying practitioner for further information.

To avoid comparisons based on direct standardized death rates, which for Northern Ireland, Eire, and Scotland would be subject to large sampling errors in view of the small number of deaths on which the age-specific death rates in these countries are based, the analysis was made on the basis of indirect standardization. For this purpose the age mortality rates from skin cancer for males and females in England and Wales for the triennium 1941–3 were used as a "yardstick." These rates at ages were applied to the populations at the corresponding age groups in each of the three countries in question and the calculated or expected number of deaths for males and females were thus obtained. The number of deaths actually recorded in each country during the triennium was then compared with the calculated number, and the significance of the difference was measured by the formula:

$$\frac{\text{Actual} - \text{Calculated}}{\sqrt{\text{Calculated}}}$$

When the difference in any instance exceeded three times its sampling error the result was regarded as being statistically important. The results are given in Table II, in which the excess mortality from skin cancer in both parts of Ireland as compared with England and Wales is

TABLE II.—*Showing the Actual and "Calculated" Number of Deaths from Skin Cancer during the Period 1941–3*

Country	Males			Females		
	Act.	Cal.	$\frac{\text{Act.}-\text{Cal.}}{\sqrt{\text{Cal.}}}$	Act.	Cal.	$\frac{\text{Act.}-\text{Cal.}}{\sqrt{\text{Cal.}}}$
Scotland	150	208	−4·0	174	156	+1·4
Northern Ireland	98	56	+5·6	60	37	+3·8
Eire	230	156	+5·9	120	90	+3·2

noteworthy. For males and females the difference between the actual and calculated number of deaths is five times and three times, respectively, greater than its sampling error.

In Scotland the female experience was only slightly in excess, but for males the recorded deaths were much fewer than would be expected to occur according to the statistical experience of males in England and Wales.

Sites of Skin Cancer

In view of the high mortality from skin cancer in Ireland as compared with that in England and Wales, and also of the fact that its statistical distribution according to site of occurrence is published in more detail in Northern Ireland than is the case for the other home countries, it was of interest to ascertain the frequency of site involvement in that region of the country. The results for the period 1941–3 are shown in Table III.

TABLE III.—*Incidence of Skin Cancer According to Site in Northern Ireland*

Site	Males		Females	
	No.	%	No.	%
Cheek	7	7·1	5	8·3
Ear	20	20·4	—	—
Face	53	54·1	46	76·7
Perineum	—	—	1	1·7
Scalp	4	4·1	2	3·3
Umbilicus	—	—	1	1·7
Neck (skin of)	4	4·1	—	—
Abdominal wall	1	1·0	—	—
Nose	1	1·0	—	—
Other skin	8	8·2	5	8·3
	98	100·0	60	100·0

It will be noted that for both sexes the face is the principal location. Face, cheek, and ear in males account for 81.6% of the skin cancer deaths. For females, face and cheek contribute 85%. No female deaths from cancer of the ear are recorded. Dr. Berenblum suggested to us that protection of the female ear from sunlight by hair might have to be considered in explanation of this sex difference. Without more detailed information bearing on occupations, these figures cannot be fully explained. Since a high proportion of the population in Ireland are agricultural workers and the women are included among these, suspicion might seem to fall on sunlight rather than atmospheric soot; but here it should be noted that Ireland has a humid atmosphere very different from that, for instance, of Australia. No similar figures relating to the site of lesions in urban England are available for comparison.

Social Status

In the very interesting statistics which the Registrar-General has published in the Occupational Mortality Tables for England and Wales covering the period 1930–2 he has concentrated chiefly on the age period 20–65 years, and the standardized mortality ratios which he has published relate to this period of working life. There were sound reasons which justified or determined this age restriction. But in a discussion of occupational influence on disease, particularly in relation to cancer, it is obviously important to include, if possible, the statistical experience after age 65, because many of the deaths occur at this stage of life, and it may be that an occupational factor in the causation of cancer, at least in some sites, may not fully declare itself until the man has retired from work. But a difficulty arises and it has been indicated by the Registrar-General in the following terms: "Statement on the Census Schedule of the former occupation of retired males tends to be omitted as life advances, whereas in death registration the statement of the last occupation can nearly always be obtained, and the result is that at ages after 60 the population returned as never occupied is too large, and the populations of the occupied are too small, to correspond with deaths similarly classified."

From an examination of the available data for the period 1930–2 the Registrar-General was satisfied that the error introduced in this way was of much less importance than at the previous census. "At ages 65–70 the transfer of the population, if spread evenly over the occupied classes, would increase the numbers at risk by only 3% throughout, and reduce the mortality rate in the same proportion." At ages 70–75 the reduction in mortality would amount to approximately 6% and at age 75 plus to about 11%.

To test the possible effect of this transference on the mortality from cutaneous cancer the standardized mortality ratio at age 65 plus was calculated for certain combinations of the Registrar-General's five social classes: I and II representing professional and executive classes; III, skilled workers; IV and V, unskilled workers and labourers. (The standardized mortality ratio (S.M.R.), usually expressed on a percentage basis, indicates whether the recorded deaths in an occupation are equal to, greater than, or less than the "expected" number.)

The trend of the ratios according to their social significance was then compared with that shown by the similar ratios for the age period 26–65, which may be regarded in the present instance as the "control series." If there be a parallelism in the trend in the ratios at the two contrasted age periods, then it would be fairly legitimate to assume that the apparently disturbing phenomenon to which the Registrar-General called attention is not of very serious import so far as cutaneous cancer is concerned. The results are stated in Table IV, where it will be observed that the correlation between mortality and social status shown for males and females in the age group 20–65 is also evident in the age group 65 years and upwards, but more so for females than for males. In view of this fair degree of similarity of gradient of the mortality of each of the two age groups it seemed legitimate to aggregate the statistical experience and base the discussion on the combined age group 20 years and upwards, as has been done in Table IV.

TABLE IV.—*Actual and Calculated Deaths and S.M.R. from Skin Cancer during 1930–2 in England and Wales*

Social Class	Age Group								
	20–65 Years			65+ Years			20+ Years		
	Act.	Exp.	S.M.R.	Act.	Exp.	S.M.R.	Act.	Exp.	S.M.R.
Males:									
I and II	87	120	73	286	303	94	373	424	88
III	242	257	95	472	534	88	714	791	90
IV and V	244	199	123	579	404	143	823	603	136
Married women:									
I and II	49	54	91	34	49	69	83	103	81
III	107	114	94	90	86	105	197	200	99
IV and V	92	79	116	76	59	129	168	138	122

For wives, the S.M.R. in the combined classes I and II is 81, and it increases uniformly, attaining a value of 122 for those lowest in the economic scale. This marked association in the case of wives would seemingly rule out the possible influence of a purely occupational causation. On the other hand, the less uniform gradient in the mortality of males according to social grade would suggest that both occupational and environmental factors may be involved. In an attempt to disentangle any such causal connexion, the standardized mortality ratios for particular occupations were placed into four groups:

Group A represents workers with advantages in the matter of opportunity for cleanliness and working largely indoors. This

group, in which there were 13 occupations, comprises the professional classes, clerical grades, typists, and policemen. Their social and economic equivalents in terms of the Registrar-General's classification are represented by social classes I, II, and III.

Group B is composed mainly of occupations, nine in number, which are ascribed to social classes III, IV, and V. They are: coal hewers and getters; coal, other workers below ground; coal, other workers above ground; iron-ore mine workers below ground; stone-miners and quarriers; potters, ware makers, etc.; textile strippers and grinders, cotton; bricklayers, masons, etc. The work involved is heavy and dirty, especially in the coal-fields, but the workers in coal, who numerically dominate the group, probably utilize to an increasing extent the facilities for cleanliness afforded by pithead baths. Long exposure to sunlight is not a particular hazard in these occupations.

Group C.—In this group there are five occupations: agricultural and gardeners' labourers (social class IV); builders' labourers (social class V); other workers (navvies) in buildings, etc. (social class V); water transport and dock labourers (social class V); general labourers and unskilled workers (social class V). The men engaged in them perform arduous labour involving grime and dirt. The workers tend to conform to types either indifferent to or having inadequate opportunity for desirable standards of cleanliness. They also include categories working in the open air.

Group D is composed of only two occupations: furnacemen and rollers and skilled assistants (social class III); boiler firemen and stokers (social class IV). This group relates to men higher, on the average, in the social and economic scale than either group B or C, but the men experience in their occupation the effects of prolonged exposure to both grime and excessive heat.

The statistical experience of each of these four categories of workers aged 20 years and upwards from skin cancer during the triennium 1930–2 is shown in Table V. It will

TABLE V.—*Actual and Calculated Numbers of Deaths and S.M.R. from Skin Cancer in Four Different Groups of Male Workers aged 20 years and upwards during 1930–2 in England and Wales*

Group	No. of Occupations	Deaths		S.M.R.
		Actual	Calculated	
A	13	103	148	70
B	9	130	127	102
C	5	511	319	160
D	2	27	12	225

be seen from the figures that there would appear to be both a social and an occupational factor involved in the causation of skin cancer, and that the latter is seemingly the more important. In group A, representing as it does workers who have a high standard of cleanliness, the mortality is 30% below the average, but in groups C and D it is 60% and 125% respectively in excess.

An attempt was made to evaluate the incidence of skin cancer amongst married women in groups A, B, C, and D. The experiment was not entirely successful because some of the occupations which provide the male groups were not listed for women in the Mortality Supplement, since only a few deaths from all causes occurred in them during the period 1930–2. The number of occupations for which the facts were ascertainable was 7 in group A, 6 in B, 4 in C, and 2 in D. This reduction detracts somewhat from the reliability of the calculated mortality ratios, which for age 20 and upwards were found to be:

Group	Actual Deaths	Expected Deaths	S.M.R.
A	12	16	75
B	29	25	116
C	96	63	152
D	1	3	—

The operation of a causal social factor is evident in the gradient of the S.M.R.s from group A to group C—a gradient similar in character to that shown for males. The data in group D are insufficient for comment.

Unfortunately we have no means of ascertaining the specific sites involved in the excess indicated in groups C and D for males, as the Registrar-General does not publish the statistics for individual sites. The reason is, of course, the paucity of existing data. It would nevertheless be instructive if the statistics were available, particularly in their relation to occupation. The social circumstance and occupation of sufferers from skin cancer affecting sites which tend to retain dirt (ear, canthus of the eye, umbilicus, anus, scalp, and neck), and of cancers in other parts (face and hand) exposed to light, would make an interesting special inquiry for hospital departments of dermatology employing a standard method of recording. In view of the comparative rarity of cases, such an inquiry would need to be collectively, perhaps internationally, organized. We know from the information published for the other home countries that the face is the principal site involved. In Northern Ireland it constituted 54% of the total deaths from skin cancer for males (82% if cheek and ear are included) during the period 1941–3. The ear had second place with 20%. Somerford (1930), from a study of cases of cutaneous cancer, 57 of which were squamous-celled and 175 basal-celled, found that the face was the most common situation for both forms. From this he drew the following conclusion: "This fact in our opinion is against an occupational cause, since the face is the part of the body least likely to be brought into contact with irritating substances used in any occupation." This conclusion (for the face is the only part never covered) is not justified. In several of the occupations named (groups B, C, and D), grime or heat, or grime plus heat, are surely agents which cannot be overlooked. In others, outdoor work with long exposure to sunlight must be taken into account. According to group D of the present series, an occupational factor does seemingly operate, but at present it cannot be said if the facial site is the main involvement. More detailed statistics of location are required before any dogmatic assertions can be justified.

It would be an interesting paradox if soot and sunshine should both prove to have aetiological importance in skin cancer. In practice, however, it would be reasonable and not inconsistent to purify the atmosphere, to provide the people with baths, and to suggest protective measures for those unduly exposed to the radiations of the sun.

Summary and Conclusions

The annual number of deaths from cancer of the skin, excluding that of the penis and scrotum, is approximately 1,000 per annum in England and Wales, and the mortality in males is about 70% in excess of that in females.

The mortality for both males and females from cutaneous cancer is much greater in Ireland than in England and Wales, whereas the Scottish male experience is decidedly more favourable.

The face is the principal site involved. The ear is next in frequency.

The mortality has a definite gradient with social grouping for the wives of workers, but for the males it would seem to have both a social and an occupational relationship, and the latter is seemingly the more important.

These findings, and the anatomical character of some of the sites affected, suggest, on the one hand, that atmospheric soot or other grime (as in the case of scrotal cancer) may need to be considered as an aetiological factor. On the other hand, ultra-violet radiation from the sun may be responsible for skin cancers in exposed sites. Heat, or heat plus grime, may be

operative in such occupations as that of furnacemen, if face and hands should be shown to be frequently involved in these workers.

Classification according to site in official returns is needed to increase the value of correlations with occupational or other social factors. Correlations with geography, or hours of sunlight in different parts of the British Isles and elsewhere, should also have value.

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THE MEASUREMENT OF HUMAN SKILL*

BY

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The Grouping and Stability of the Constituent Items in Skill Performance

I now turn to the second of our three main problems—that of the grouping and stability of the constituent items in a skilled performance. This has been more often studied outside than inside the laboratory. The reason is that fully controlled investigations have been far too occupied with skill of the detailed repetitive kind, the order of constituent items being as definitely prearranged as their character. In daily life this happens very rarely. Variety of order or sequence is combined with a high degree of uniformity of issue or aim.

In *Live Hands*† a former Cambridge University golf captain has written what Bernard Darwin calls "an impassioned plea" for hands as the key to the game. He watched an Open Championship in America, and thus he describes the play of the experts: "Through the feel of their hands they swung the club head and brought it to the ball with the maximum speed and accuracy at the moment of impact. It seemed as if they had stayed behind the ball until after it was hit and that the whole weight of the body flowed in behind the shot." And so also for every other game of skill. The expert may discover his own key, the one thing or the few things that must be used with conscious effort and then everything else will happen right. The bother is that the expert is apt to treat his key as the master, whereas differences of bodily build, and consequently the mechanics of bodily action, should make it clear that in this case, as in many others, one man's salvation is another man's downfall.

We will begin with some simple but most illuminating experiments which have, however, received little attention. They are concerned with the "sense" or direction of movement in the manipulation of controls. Any direction or sense of control movement can easily be made to produce any corresponding movement of display: an upward adjustment of a lever, for example, may produce an upward, downward, right, or left movement of a pointer or a spot of light. Under these circumstances practically everybody will inevitably tend to make fewer mistakes with the up–up relation and then more and more, culminating with the up–down relation. Speaking generally, whenever, as in every form of skill, sensory reactions of differing mode have to be combined some combinations are fundamentally easier and more efficient than others. The study of these preferred combinations opens up an immense field of experiment which has so far been little explored.

It is possible to alter the sense of the manipulatory movement during the course of the experiment without the knowledge of the operator. Nearly everybody now makes a greater amount of error. But the increase is significantly greater in some cases than in others. Some operators make the display the "key," and are delicately perceptive of any change in visually presented motion. These are readily adaptable, changing an upward into a downward bodily action very often without at all definitely knowing what they have done. Others make their "key" the feel of the movement itself, and for these the required adaptation is relatively difficult. It seems as if, paradoxically, the muscular part of the skilled operation is the more efficient the less is known about it. There may be, and I think there are, instances in which the exact opposite is the case, but it is not very easy to find them.

Even when this does happen, as perhaps sometimes in the "feel of the hands" in golf, it never is the whole of the movements that emerge into consciousness. In this instance the enormously complicated follow-through of the whole body, with its complete readjustment of posture, "flows in" automatically. And when we think about it this becomes less paradoxical than it seems at first. For absolutely every skill has its immensely complex embryological basis, the first 40 weeks of which in the vast majority of human performers has proceeded with strikingly little direction from the enteroceptive senses. During this early period all the major fundamental phenomena of posture are achieved. It is customary to regard them as coming to centre about and grow out of the three main types of postural reflex—the attitudinal, the righting, and the statokinetic. But these have none of the fixity and individualization which the later reflexes, dominated by external stimuli and the play of the special senses, show. They appear, disappear, and reappear. Though their pattern remains reasonably constant the ancillary movements which stream out from them change in order, direction, and number as they start now from one position and now from another.

Yet the structure which is later going to dominate all this machinery of the motor and muscular systems, as everybody knows, appears remarkably early and long before it can have much effective use. When the time comes for senses like the eyes and ears and for the central nervous system to play the leading parts in development—for learning proper to take the place of maturation—they have an immense and complex substratum of movement to play with.

So it is not as surprising as might be supposed that one of the very common features of diminishing skill is an increased awareness of what the whole body is doing. We found that the air pilot, fresh and keen, follows his instruments and their signals closely and lets all his bodily equipment, so to speak, do as it likes. When impulses from the body do "rise into consciousness," as the common phrase puts it, they are interpreted in terms of the machine, as in steep turns and banks, in rapid acceleration, in climb and dive. But as he gets tired and his skill tends to break up, the messages from the body become, in their own right, insistent and oppressive. He is cramped, too hot, or too cold; there is pressure here and there; sometimes it seems that the instruments cannot possibly be right.

The really important upshot of all this is that every skill has its key features. They differ from case to case and

* The second of two Oliver-Sharpey Lectures given at the Royal College of Physicians of London on Jan. 23. The first lecture appeared in last week's issue.

† E. M. Prain. London: Adam and Charles Black. 1946.

from body to body, but they are always there. In by far the great majority of what may be called "educated skills" they consist in operations of the distance senses and of central selection and judgment. If we can find them and discover how they are related to their unconsidered setting or scheme of posture and ancillary movement, the problem of how to measure skill has become simpler. It is the key features whose course must be plotted, whose efficiency must be recorded. In these last few years this has been done, or partly done, for many tasks: for the pilot in the air, for the tracking of targets, for the radar operator, for a number of skills which alternate periods of monotony with periods of intense activity, for the high-speed reading of dials and banks of dials, for the sending and reception of messages in code, for steady winding with varying load. In all these—and the same is true for innumerable other activities for which similar methods can now be developed—it is not every descriptive item in a repertoire of skill that must be recorded and assessed, but the leading functions only.

When, with this in mind, we stand back and look at skill as it is done, we can perhaps see clearly how it is that the skilled performer must know more *what* to do than *how* to do it, and that at once leads us to our third problem, the functions of "the task."

Relation of Achievement to Means of Achievement

The best approach is to consider an actual problem. I will choose one which, in this field, is fairly simple—the operation of the bomb-aimer. For practical reasons this operation has been submitted to a very thorough experimental study. The area bomber approaching his target can see that its limits are marked by a number of flares of given colour which act as target indicators. His task is to judge as accurately as he can their central point of impact and to drop his bombs as near this as possible. Obviously the limits of area cannot for certain be exactly indicated, and the flare pattern can never for certain be exactly repeated. The number and clustering of the target indicators are liable to rapid and wide fluctuation. Sometimes a pattern will be relatively symmetrical, and sometimes there will be outlier flares which are known to constitute a kind of key item in the display and to distract judgment. Now it is possible to reproduce this situation in miniature, so that the flare patterns appear at the rate and with the visual properties which they have under operational conditions, and the bomb-release-control movements are the same. Naturally much of the excitement of the operational task is lacking, but a few experiments showed that this makes little difference. The errors produced in the experimental setting were almost the same, in direction and amount, as those made in operational conditions.

In the experiment the bomb-aimer is briefed so that he knows the general character of the area which is to be delimited. He watches the target indicator pattern approach, and presses the bomb-release switch at what he judges to be the correct moment. Two points are all important: first, he must precisely understand what he has to do—that is, to drop his bomb as near as possible to the central point of impact of the flare pattern—and, secondly, having performed his job, he must know the exact degree of his success. The common belief that "practice makes perfect" is not true. It is practice *the results of which are known* that makes perfect. There is some evidence, though it is not quite conclusive, that the more the results can be expressed positively in terms of success the better.

Under these conditions a normal operator will improve very rapidly and maintain his improvement from trial to trial. Now suppose we take a set of entirely new target indicator patterns, so that, given a constant fixation point, the retinal areas stimulated are different ones; and suppose we demand a new type of bomb-release pressure, so that the tactile areas and the muscles used are different. Provided these two things remain constant—the task and the knowledge of how successfully it has been performed—and there is no very marked change in the general environment, the skill which has been acquired remains with no increased time requirement and no greater fluctuation of success within a wide range. Ask the operator how he has done his work, and different persons may invent, or at any rate describe, very differing techniques. The plain fact is that most of them do not know and do not need to know, for the precise sensations and movements develop out of the setting of the task much as the specific arm or leg movements grow out of the attitudinal reflex; and they are fixed by knowledge of success as the very early movements must be fixed by some kind of biological efficacy, and with a similar but even wider range of variability.

Now, I think we have assembled all the chief items required for the experimental measurement of those forms of skill which combine bodily and mental behaviour. First it is necessary to have some direct measure of achievement. This may, however, throw no light on the means of achievement. Since we must know not only how well a thing is done but within what limits of success it can continue to be done, a measure of immediate achievement is not enough. Continuance of skill depends chiefly upon the maintenance of key features, both in receptor and in effector response, and on their time relations. These key features may vary from person to person or from group to group, but in many cases they remain remarkably constant for all, and always they display great constancy from effort to effort in the same operators or operator groups.

Receptor key items can usually be determined experimentally by the design of the display or stimulus pattern. The important factors are positional, directional, intensive, qualitative—as in the cases of colour, form, clustering, or pattern qualities—and numerical. It must be admitted that at present the determination of effector key items demands much the same process as clinical diagnosis, and perhaps it always will; for, as we have seen, the exact movements made in skilled performance are apt to escape any known form of exact objective registration. When key features are determined the kind of measure that is needed is a plot of their course, of the way in which and the degree to which they appear and reappear in continued exercise.

Finally, since all skill can be rightly treated as a continued interlinkage of receptor and effector responses, and the efficiency of this depends most of all upon timing, the third measure that is required is one of what I have called "total reaction time" in a series. The measurement of achievement tells us nothing for certain about means; the plot of key items by itself gives us no information about the efficiency with which the task is done; the record of timing by itself does not indicate what are the key features or what success attends the effort. All three are needed.

Is it possible to simplify still more, to find a single measure which will indicate what may be called the "level" of skill in a given individual? The answer is "Yes," but the simplification may be more apparent than real.

The best single measure of skill level is one of its "range of constancy," its degree of resistance to disintegrating conditions. This measure can be expressed in any one of the three basic ways. But a record of degree of achievement alone can obviously be extremely misleading: for with interference conditions a less successful achievement must be equated with a better one. Apart from a very prolonged experiment it is not possible to know how to do

this, and at the best it can be done only in a very approximate and statistical manner. A plot showing how key features are maintained is better, but is rarely satisfactory alone, because it is not uncommon to find the operator switching from one set of key features to another, holding these for a while and then switching back again. And, since continued exercise may itself be a disintegrating condition, this may well be one of the best ways of maintaining a level of skill. A random fluctuation of key features is, however, always a sign of the imminent break-up of skill. If level of skill is defined by its capacity to resist interference, the measure of total timing of successive responses is the best single criterion, for if timing gets out of step nothing can for long stop the complete break-up of the skill. A combination of all three types of measure, however, remains the best criterion that can be used.

Is the Exercise of Skill a Discontinuous Function?

I want now to turn to a brief and, I am afraid, very incomplete consideration of a fundamental question about the nature of operative skill which is raised by all these investigations. At the very beginning I suggested that skill emerges with the graded response, when the characters, and especially the intensive characters, of the stimulus are faithfully reflected in the response. But how are we to picture this grading? It has long been evident that from an afferent sensory point of view there is no such thing as an absolutely continuous grading of response, but rather a series of steps which, set end to end, so to speak, produce an appearance of continuity. Moreover, these steps are affected by a large number of conditions, among which very important ones are, in some cases, the rate of application of the stimulus, the duration of the stimulus, and the state of adaptation of the peripheral organs. Within limits the faster the rate of application, the more durable and the more within the range of adaptation the stimulus, the smaller the steps.

Similarly the effector side of the process may have a discontinuous character. In positional tracking, for example, an operator may appear to move continuously from his starting-point on to the target, and then, when it is stationary, or moving at a regular rate in the same direction, hold it continuously. But experimental records show that the normal thing for the operator to do is to produce a series of oscillations each lasting very consistently for about one-quarter to two-fifths of a second. With other forms of control the oscillations have a somewhat longer duration but are even more marked.

Other illustrations are better known. For example, in scanning a visual field for the identification of an inconspicuous object the observer will consider that he is making a smooth continuous exploration. But it is very easy to demonstrate that he proceeds in a series of saccadic eye movements with interfixations. The pattern of movements and pauses varies considerably from individual to individual, but remains very consistent for any particular observer. The mean fixation time, in free search for short periods, is approximately half a second with a mean interfixation interval of 5°.*

These facts and many others appear to suggest strongly that human skill is basically a discontinuous function both on the receptor and on the effector sides. But about the extremely important questions which arise if this is the case very little is known. How the discontinuity of reception is related to that of action is obscure, but each must clearly affect the other in continued exercise. Moreover, once a skill has been practised a few times the picture is complicated by anticipation and some factor very like inertia which may well tend to counteract any initial discontinuity.

Meanwhile it does seem as if we have to consider the human being as fundamentally operating somewhat after the manner of the ballistic galvanometer. For each skill there may be some minimal effector impulse which, once it comes into operation, prevents any further exteroceptive change from doing anything at all until the effect of the impulse and recovery from the effect are complete. If so this may be why timing and variations of timing are the central significant measures for all kinds of bodily skill. It would also follow that if ever a mathematic adequately descriptive of human skill becomes possible, it will be a mathematic of discontinuous functions.

Mental Skill

Last of all I must say something about those highly developed forms of skill which are called mental. The most impressive characteristic of mental skill is its use of symbols, and particularly of symbols which can be given a permanent form. The distance senses upon which psycho-physical skill mainly depend set man free from the confines of immediate space. The symbols and their means of preservation which he has developed make possible enormous strides further in the same direction. They mean that timing, the vital feature up to this point, becomes of little direct importance or takes new forms. Now for the first time a new type of correction becomes possible, before the skill product need be given any public expression, actual or possible. In verbal skill it may be a substitution of word or phrase; in plastic skill of form, colour, mass; in music of tone, melody, with the items substituted picked out here and there and not in any settled serial order.

We are forced to use new vaguer criteria, of rhythm and proportion (which are no doubt still forms of timing), of meaning, relevance, truth, beauty, fitness. These appear to be almost infinitely fluctuating. Are they perhaps only approximations—so far to be placed in no known scale of quantities—to human conventions widely but impermanently established, or are they measurable by the nearness of their approach to something fixed and final? We can only speculate.

There is one suggestion which I believe could be studied with reasonable control. It occurs in the deeply interesting book by Jacques Hadamard called *The Psychology of Invention in the Mathematical Field*.* In this book he refers several times to the appearance of error in mathematical reasoning: "Good mathematicians when they make errors, which is not infrequently, soon perceive and correct them. As for me (and mine is the case of many mathematicians), I make many more of them than my students do; only I always correct them so that no trace of them remains in the final result."

"Time will have its revenges." Here perhaps it comes back on us in a new form. Maybe the best single measure of mental skill lies in the speed with which errors are detected and thrown out, a function which becomes possible only when skill has first a symbolic expression.

How is this done? We do not yet know, but we can set to work to find out, and if we do one thing is certain: we shall find that when man achieves the symbol and its permanent expression he does not really cut himself adrift from the age-long ways of the simpler kinds of skill. The topic replaces the task. Given the topic the words or numbers, or colours or tones, develop out of it as movements from the task. Both have their tremendous

* The experiments referred to were designed and carried out by Mr. R. C. Oldfield.

* Princeton University Press, 1945 (in England, Oxford University Press).

embryology, so that in both cases there is no necessary prior recall of items before use. Generally what we style recall *is* use.

There is a very simple and rather beautiful experiment which Henry Head used that may, I think, give us a clue. Before certain of his aphasic patients he set a number of solid shapes of triangles, squares, cubes, and the like, which were to be viewed but not touched. The objects were covered and then either exactly similar or different ones were placed in the hands of the patient behind the patient's back, and he had to indicate whether the object now being tactually explored had or had not previously been among those seen. No patients had any difficulty in making the required identifications accurately, but the *order* of original exposure could not be indicated without difficulty and error. The identification of form was immediate and required no necessary prior recall of the visual qualities concerned. One sensory pattern—tactual—fitted another sensory pattern—visual—of different mode. Head called this process "matching." It could cope with shape, but order requires the use of a symbol of the word-type, and was out of the range of his particular observers.

Now it has frequently seemed to me that matching, the immediate fitting of one set of responses to another or of one content to another, may well be a process which has a much wider range than is often realized. For every task, for every topic, at every level of psychological development there are perhaps the fit reactions and expressions, and there is perhaps some mechanism characteristic of each level of development which can identify the ones that are fitting or throw out the ones that are unfitting.

I think, perhaps, that what Hadamard suggests in the case of the good mathematician is just as true of the great clinical physician. It is not that he makes fewer mistakes than less-skilled people, but that he knows his mistakes more quickly and does not follow them so often to the stage at which they become irremediable. After, sometimes long after, it may become possible to identify and quite definitely to characterize the item of error. But at the time there is literally nothing except the knowledge that to go on along this line will not fit. The several patterns and functions involved must be very different from those of direct sensorial matching, and the content used may require a highly abstract and symbolic representation, but fundamentally the process is the same at the high level as at the lower.

And, of course, if this is a right way of approach, mental skill, even in its highest reach, is not merely an approximation to temporary convention, but is an achievement of combinations of response which do, as a matter of fact, fit well together. Whether or not a measure of such skill can be obtained in terms of relative sensitivity to errors or false starts is indeed still a matter for investigation; but at least this hypothesis is not beyond the bounds of an empirical study.

NOTE.—Most of the work which I have referred to in these lectures is as yet unpublished, though it has been the subject of a large number of reports, the great majority of them from the Cambridge Psychological Laboratory. I wish to acknowledge first the generous support by the Medical Research Council, through their establishment of a Unit of Applied Psychology at Cambridge; by the R.A.F., chiefly through the Flying Personnel Research Committee; and by the Ministry of Supply, mainly through bodies concerned with tracking problems and the development of servo-mechanisms. There is practically no member of the research and teaching staff of the Cambridge Psychological Laboratory who has not contributed in important measure to the success of the undertakings involved, but it is perhaps permissible to refer especially to the insight and initiative of the late Dr. K. J. W. Craik and to the vital experimental studies of Dr. W. E. Hick, Miss M. A. Vince, Dr. D. Russell Davis, Dr. N. H. Mackworth, Dr. A. W. Carpenter, and Mr. G. C. Grindley.

MODERN TREATMENT IN PSYCHOLOGICAL MEDICINE*

BY

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Progress in psychiatry was for many years slow, and hospitals for mental disorders were used primarily for custodial care rather than therapeutic centres for such illnesses. Between the two world wars, however, considerable progress was made in the treatment of psychiatric conditions, and a milestone was passed when the treatment of G.P.I. was successfully instituted by Wagner-Jauregg in Vienna in 1917. During the same period the treatment of agitated and restless patients was tried under continuous sleep by Klasi of Switzerland and other workers, and this was found to be of considerable value.

It was recognized that schizophrenics rarely suffered from epileptic seizures, so trial was made of the treatment of schizophrenia by inducing epileptic fits with convulsant drugs, among them leptazol and triazol. It was found, however, that in those cases of schizophrenia in which depression was marked the improvement in the depressive element of the illness was striking, while the schizophrenia as a whole was not greatly improved. Depressive illnesses were therefore treated by artificially induced fits, with much more satisfactory results than in schizophrenia. This method of inducing fits by these drugs was, however, found to be unreliable in that fits did not always occur and often caused great fear and apprehension in the patients. The use of convulsant drugs was replaced by a machine which produced fits by passing an electric current through the head. The patient felt no ill effects, and the fits occurred in over 90% of cases.

Following the abandonment of the convulsion treatment of schizophrenia another milestone was passed by the introduction of the insulin treatment of schizophrenia, which was begun by Sakel of Vienna about ten years ago. Previously a certain number of schizophrenic patients recovered spontaneously by having remissions in their illness, but the prognosis and duration of the condition have been materially altered by the introduction of this form of treatment. At the same time that these physical methods were being developed, psychological methods were also being improved upon. Thanks to the work of Freud and various of his followers, such as Jung and Adler, the psychopathology of mental diseases was understood for the first time. Previously the patient's delusions, thought content, and actions had no meaning to the psychiatrist. Following on the work of Freud, however, it was possible to understand why the patient said, for instance, he was "too wicked to live" or why he was continually washing his hands, etc. From this understanding of the psychopathology of mental illness it became possible to probe into the patient's unconscious mind and so deal with the conflict which was the cause of his neurosis or psychosis. The technique of psycho-analysis was developed by those who themselves had been psycho-analysed, but this is a costly and lengthy form of treatment. Other methods of psychotherapy—to be discussed later—have been evolved for dealing with the patient's illness in a much shorter space of time, and in many cases are just as efficient.

At the outbreak of war in 1939 this roughly was the position regarding the treatment of psychiatric illnesses. It

* A paper read to the Sutton and District Medical Society on Feb. 7, 1947.

was felt that large numbers of psychiatric casualties would occur among the civilian members of the population as a result of air raids, while the Armed Forces would have their quota of psychiatric casualties also. Long and costly methods of treatment would not be possible for large numbers of psychiatric casualties, as neither the psychiatrists nor the beds would be available. Various techniques of treatment were devised, and it is proposed to discuss those which are likely to prove of value in the treatment of psychiatric illness in civilian life, although they were first largely applied to psychiatric illness occurring during the last war. For simplification, treatment may be divided into physical and psychological methods, but in most cases a combination of these can and must be used.

Physical Methods

Continuous Narcosis

For those suffering from acute anxiety, agitation, or acute panic reactions continuous narcosis is an invaluable form of treatment. By this means the patient can be kept in a state of twilight sleep for a period varying from 4 to 14 days. During this time he is completely cut off from stimuli in his environment, and as a result his mind is given complete rest. Various drugs, such as "somnifaine," phenobarbitone, and "dial," can be used for this purpose, but in my experience sodium amytal is the most efficacious. This drug acts rapidly, is rapidly excreted, does not tend to accumulate in the body, and toxic symptoms are not common. The usual dose is 6 gr. (0.4 g.) every four hours, while if additional sedation is necessary 2 dr. (8 g.) of paraldehyde can also be given. The patient, who is treated in a darkened room, can be roused to take his meals, and the next dose of sedative should be given after his meal and after he has used the bed-pan, etc., so that he is not disturbed unnecessarily. It is essential to see that plenty of fluids are taken, as this helps to ward off toxic symptoms. The usual check is kept on pulse, temperature, and blood pressure, while the daily output of urine should also be measured. When the patient is finishing treatment the drug should be gradually withdrawn, as instant withdrawal sometimes produces major epileptic seizures. On coming round from the drug the patient is often "muzzy" for a few days; but the result of the rest in many cases is to remove the acute anxiety symptoms, when the patient is more fit to be approached from the psychological point of view.

Insulin Treatment

Many patients suffering from chronic neurosis, such as anxiety states, tend to lose weight and as a result feel that there is something wrong with their bodily health. In addition their appetite is poor, they do not wish to eat, and a vicious circle is set up. Early in the recent war small doses of insulin were given to such patients in the morning fasting, and it was found that by gradually increasing the dose the patient passed into a state of sopor and became drowsy and calm. The dose of insulin, which starts at 10 units and is increased to about 80 units, is given at 7 a.m., and the patient is allowed to remain in this state of sopor until 10 a.m., when he is given a cup of sweetened tea, 12 oz. (340 g.) of *sauté* potatoes (as a substitute for sugar, owing to the shortage), together with his ordinary breakfast. He is not allowed to go into coma, and after this treatment has been given for five days a week for a few weeks the appetite improves considerably and there is a large gain in weight. The suggestive effect of putting on so much weight is remarkable, and this modified insulin treatment, as it is called, has proved of great value in the more chronic neuroses where loss of weight is a feature. In some cases where patients are undergoing continuous narcosis and their appetites are poor, modified insulin treatment can be combined with the narcosis with great effect.

Insulin Coma

This treatment is used for all forms of schizophrenia, but is said to be most effective in the paranoid types. It has been found of value not only in cutting short the attack but also in resocializing a patient for whom a poor prognosis would previously have been given. There are certain physical contraindications to this method of treatment, and in those patients who have had tuberculosis there is a definite risk of reactivating the infection; so for this reason it is unwise to use the treatment in such cases; nor should it be used where there are grave circulatory or kidney disturbances. The treatment can obviously be given only in hospital, with nursing and medical staff specially trained in the method. The ideal arrangement is to have a complete unit with medical and nursing staff in continual attendance during treatment, with emergency trays containing equipment for both nasal and intravenous methods of interruption of the coma always at hand. In addition, trays containing stimulants such as adrenaline, nikethamide, etc., should always be ready. As in the modified insulin method of treatment, the patient is given his injection of insulin at 7 a.m. fasting, the usual commencing dose being 10 units. The dose is increased daily by 10 units, and in a number of cases 300 units or more may be required to induce coma. The patient gradually goes into coma with profuse sweating, often stertorous breathing and restlessness, and is allowed to remain in coma for about half an hour. However, should he develop epileptic fits, irregular pulse, falling blood pressure, respiratory stridor, etc., the coma must be interrupted at once. As a routine this is done nasally by giving 33% glucose; if the condition is urgent it is given intravenously.

When the patient is roused he is rubbed down, put into dry clothes and a dry bed, and given sweetened tea and a meal. It is necessary to keep the pulse, respiration, temperature, and other such records carefully from the time he is given the insulin until he comes out of his coma, and such patients, after treatment, should not be allowed far from their ward, as they may develop late hypoglycaemia. Patients should be encouraged to carry some lump sugar or chocolate in case they feel faint. The patient is allowed up by lunch-time and then takes part in the other forms of treatment, etc., to be mentioned later. As with modified insulin, treatment is given five days a week. Most favourable cases respond in two months, but if no improvement occurs after the third month the likelihood of recovery is poor.

Electric Convulsion Therapy

This form of treatment is now used effectively in depressive illnesses. It has been found of most value in depressive illnesses which are constitutional or endogenous and arise from the personality of the patient. Where, however, the illness is reactive to an external situation convulsion therapy can be of help in giving a "fillip" to the patient when he seems to be stuck in a groove and unable to make progress. In those forms of depression occurring at the involutional period it is probably of the greatest value. Here again the contraindications are similar to those for insulin treatment, while patients with high blood pressure, arteriosclerosis, and brittle bones are not good subjects. The patient is given the treatment fasting, and at our hospital he is controlled in a special jacket which helps in preventing fractures (the commonest being a

crush fracture of the lumbo-sacral spine) that occasionally occur, while a gag is inserted in the mouth to prevent tongue-biting. If the patient is nervous he can be given 3 gr. (0.2 g.) of sodium amytal before the treatment, while patients who suffer from rheumatoid arthritis with some stiffness of the joints have been given tubocurarine to produce muscular weakness so that the pull on the bones will not be so great. When the patient is held in the correct position a current is passed through his head by means of two electrodes, and a typical major epileptiform attack occurs. He is put back to bed, and for a time may be confused and complain that he cannot remember. These symptoms clear up in the course of a few hours and may recur temporarily when the next fit is given. Some authorities maintain that permanent memory disturbance and intellectual impairment result from this form of treatment, but this seems to be the case only when the treatment is given too frequently. The number of fits depends on the progress made, and in some cases an occasional fit as an out-patient keeps the patient going, whereas otherwise his condition would be chronic and mean a permanent stay in hospital.

Prefrontal Leucotomy

Moniz first used this operation on patients suffering from incurable mental disorders. After injecting alcohol into the subcortical white matter of the prefrontal lobes cores of white matter in the prefrontal areas were separated with a steel leucotome but not removed. Since Moniz first employed the method various techniques have been devised; it is obviously not practicable to describe the technique here, as the operation can be successfully carried out only by a neurosurgeon. Post-operative care and nursing are important, a careful check being kept on the pulse, respiration, and blood pressure for at least 48 hours. For restlessness 1½ gr. (0.1 g.) of soluble phenobarbitone may be given intramuscularly, and 1 gr. (65 mg.) of codeine phosphate four-hourly may be used for the relief of headache. Morphine must on no account be given.

The operation, which should be performed only when all other methods of treatment have been tried and failed, has been carried out successfully on disturbed and noisy schizophrenic patients, thus making them more easily managed and rendering the nurses' task less irksome and difficult. In a limited number of cases such patients have been able to live outside hospital and in the care of relatives. In involutional and other long-standing depressive illnesses leucotomy has been successful, while experimental work on the value of the operation in antisocial mental defectives, post-encephalitics, etc., is still being carried out.

In the neuroses, such as obsessional and anxiety states —illnesses which can as completely incapacitate the individual as the psychoses—successful results have been reported. The tension and anxiety are relieved and the obsessional thinking, rumination, etc., although still present, are much less vivid and do not handicap the patient to the same extent as before operation. It is important before operation to inquire very fully into the patient's personality, as aggressiveness and other such traits causing antisocial conduct may become more pronounced after operation.

The intellectual capacity is said not to undergo any reduction. Obviously where the patient was previously doing a job for which a high degree of intelligence was not required the point is not important; but where such a high degree is required careful thought must be given as to the advisability of operation. The patient, however, may become less self-critical, more demanding, and hasty-tempered, with resulting conflict with his environment. The mortality rate is low and usually death is due to haemorrhage, while a late complication may be the appearance of epileptic fits and status epilepticus.

Narco-analysis: Abreaction

It has long been recognized that an unpleasant traumatic experience is repressed from the conscious into the unconscious mind. The result of this repression leads in many cases to a gap in the memory, or fugue, which extends from a short time prior to the trauma to some time after it. The resultant loss of memory is a source of worry to the patient, as sometimes he wonders what happened during this period of amnesia, and he may think that he has committed a criminal act. Hypnosis and psychotherapy were formerly employed to try to re-establish this loss of memory, together with the unpleasant episode, and in many cases considerable time had to be spent before the psychiatrist was successful in bringing about a cure. During the war this type of hysterical reaction in which the patient went through a harrowing experience was common, and as it was necessary to try to restore the memory rapidly, sodium amytal, given intravenously, was first used. A dose of 7½ gr. (0.5 g.) in 5 ml. of water is given slowly at the rate of about 1 gr. (65 mg.) per minute, and when the patient has received about 5 gr. (0.32 g.) he becomes relaxed and in a state resembling that of drunkenness, in which he is garrulous and talkative. The patient's conversation is then led from the last thing he recollects before the incident until the actual incident itself is recalled and re-enacted. In many cases several sessions are necessary before the full incident is recounted, and during these sessions the patient relives the experience and a terrific amount of emotion is released. When it is considered that the patient has talked sufficiently at that session the injection of sodium amytal is completed, after which he sleeps for several hours. It might be argued that it is unwise to restore an unpleasant incident which is upsetting to the patient, but the loss of memory is productive of much more worry to him than a knowledge of the incident, which can be explained to him and be accepted in a reasonable light. This abreaction, or getting rid of pent-up emotion, has also been called "mental catharsis" or "emotional diarrhoea."

Various other drugs have been employed for this purpose —namely, thiopentone, hexobarbitone, and ether. The last-named is now more commonly used than sodium amytal to produce abreaction. This form of treatment is also of value in peacetime in hysterical loss of memory and acute anxiety states where obviously some traumatic incident has been repressed.

Psychological Methods of Treatment

I do not propose to discuss at length the various techniques of psychological treatment, as the specialized forms such as psycho-analysis should be left to those specially trained in this type of treatment, while hypnosis, suggestion, and persuasion are constantly used as adjuncts to physical methods of treatment or by themselves.

The importance of suggestion is seen when a patient is admitted to hospital. When he enters the ward he should be made to feel the business-like atmosphere and air of confidence among the medical and nursing staff, rendering him hopeful about the outcome of his illness. This suggestion plays an important part in the whole hospital atmosphere, while the giving of medicines, even though they may be only placebos, can help in this way. Psychotherapy, such as detailed history-taking, the talking over of difficulties, discussion of home and other worries, must be used in every case. Group psychotherapy, where several patients meet and discuss their symptoms and difficulties collectively, is also of value.

Patients enact situations which they find difficult and which they are ordinarily unable to face; this technique is called psychodrama. These methods of treatment allow several patients to receive treatment at the same time and help to develop team spirit also. In dealing with the psychological approach to the patient I should like to mention certain aspects which have been evolved as a result of our war experiences and which can be carried usefully into civilian life. At the outbreak of war men were called up for the Army and if medically fit were sent into various branches irrespective of their training in civilian life or degree of intelligence. As a result it was found that men who possibly were labourers and were dull intellectually were sent to workshops where skilled engineers were required, while skilled engineers were likely to find themselves doing labouring jobs in the Pioneer Corps. The result was that the man who had had no skilled training and was unable to do his job became anxious and worried about it and broke down, while the skilled man became "browned-off" and bored with the dull monotony of his job and also broke down because of the lack of opportunity for him to use his skill. This led psychiatrists and psychologists, with the co-operation of the appropriate Service authorities, to devise selection in the placing of recruits into jobs more in keeping with their knowledge and capabilities. When a man had no skilled trade or profession in civilian life he was tested by the psychologist from both the intellectual and the vocational point of view so that he might be trained along the lines for which he showed some natural aptitude or bent. In this way recruits with a tendency to artistic work might be employed in cartography or draughtsmanship, while no time would be wasted in training an intellectually poor man with little or no natural aptitude when he was obviously suited only for menial and labouring jobs. This personal selection proved of great value in preventing unnecessary breakdowns among Army personnel, and is now being used in civilian life in industry. It is important that the right job should be found for each type of person wherever possible. In addition, it was observed during the war that some men were able to shoulder responsibility up to a certain degree, but when promoted above this point were unable to cope with the added responsibility, and broke down if not allowed to revert to their previous rank. In civilian life the same thing applies: some people are able to rise only to a certain level, and if promotion means added responsibility to which they cannot adapt themselves they must be content, if they wish to lead normal useful and happy lives, with a lower income level than the man who can accept that responsibility. This point is dealt with in a little more detail later on.

Rehabilitation and Occupational Therapy

The treatment of the neurotic differs from that of the physically ill patient in that the former, except when undergoing special treatment, is not confined to bed and his day must be planned in some useful way for him if he is to be prevented from becoming bored and brooding over his troubles. For this purpose various adjuncts to the treatment already mentioned are provided in a neurosis centre. Physical training, varying from light to full, should be given daily to those who are physically fit for it. In many cases the neurotic has a poor posture, and the correction of this by physical training helps in restoring confidence. Occupational therapy must also be provided, and this can be divided into recreational, diversional, and vocational. The first consists in providing reasonable recreational facilities in the form of indoor and outdoor games. In the playing of games it is wise to have inter-ward competitions, which provide healthy rivalry and stimulate team spirit. Concerts, entertainments, and discussion groups are held, while recitals by well-known instrumentalists, who at the same time give talks about the instruments and the history of music, help to stimulate the patients' interest. Lecture discussions are held every week, all the lecturers being authorities on their subjects. Politics, geography, history, and other topics are discussed.

Diversional occupation consists in the making of various articles in the workshops. Among the types of occupation are rug-making, leather work, perspex work, making soft toys, carpentry, and gardening. The patients are allowed to choose the kind of work they wish to do, and when an article is completed they are allowed to purchase it at cost price. The accomplishment of making an article brings with it a sense of pride and helps to restore the loss of confidence from which most neurotics suffer. Lastly, the vocational type of occupation provides a means by which a patient who has no trade to go back to can be trained—for instance, in gardening or carpentry—and the foundation laid for him to begin a more thorough training that will help to rehabilitate him in the outside world. Patients are not dragooned into working, but are encouraged to do so, and they usually respond well.

It is important that neurotic patients should be allowed out of hospital to visit their homes, local cinema, etc., so that when the time comes to leave hospital the task of readaptation to social life will not be so difficult.

Industrial Neurosis Unit

An experiment that is being carried out at Sutton consists in the development of an industrial neurosis unit. One hundred beds for both sexes are being set aside to which neurotics who are misfits in industry can be admitted. For some considerable time it has been known that men and women go to employment exchanges almost weekly asking for new jobs as they are unable to cope with their present ones. Jobs are changed at very frequent intervals and for trifling reasons—namely, that the work is too noisy, the conditions under which they work are too hot or too cold, or they cannot tolerate the foreman. These people are to be referred to a psychiatric out-patient clinic for an opinion. If there is a psychiatric condition which requires treatment this will be dealt with by out-patient attendance if possible; otherwise the patients will be admitted to the industrial unit.

It is hoped that it will be possible to treat and "vet" such patients in the course of a few weeks and that a maximum stay of six weeks in hospital will be required. The patient will be tested by a psychologist to assess intelligence and to find out what his natural aptitudes are. A social worker will investigate his home conditions and attempt to straighten out any difficulties, while appropriate psychiatric treatment will be given for his condition.

Additional workshops are being supplied for the unit, and it is hoped to provide for hairdressing, tailoring, secretarial work, bricklaying, plastering, and interior decorating. These shops will be staffed by skilled instructors, each of whom can teach about 10 patients at any one time. It is also hoped to establish a liaison with local firms where hospital patients may be sent to work in an unpaid capacity for a few hours each day. This will help in vocational selection. A Government training centre will provide 20 vacancies a week for patients who are found to be suitable for teaching a particular trade, while a full-time disablement resettlement officer of the Ministry of Labour will be attached to the unit to help in placing the patients after discharge and to send reports to the patient's local employment exchange. After-care will in most cases be of

great importance, and a social worker will cover both the patient's home and employment after discharge.

This, briefly, is an outline of the scheme, and it is hoped that many patients who formerly helped to swell the ranks of the unemployed will be returned to work either in the open market or in sheltered employment.

Conclusion

There is no doubt that psychiatry is fast becoming, or has become, an important branch of social medicine. Adequate housing and education, the teaching of the individual how to enjoy his leisure time without becoming bored, and financial security are all important factors in promoting mental health and in preventing relapse of those who have recovered from mental ill-health. The removal of public prejudice against mental disease, and an attempt to make everyone appreciate that psychiatry is a scientific subject, are of paramount importance in the promotion of mental hygiene.

PENICILLIN IN THE TREATMENT OF DIPHTHERIA

BY

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Penicillin Sensitivity of Carynebacterium diphtheriae

In 1929 Fleming reported that a slightly purified extract of a broth culture of *Penicillium notatum* was active against the pyogenic cocci and rather less so against *Corynebacterium diphtheriae*. This observation was confirmed by Clutterbuck *et al.* (1932) and by Chain *et al.* (1940). Young and Mood (1945) tested six strains for penicillin sensitivity and found all to be inhibited by concentrations between 0.004 and 0.06 unit per ml. In contrast to this Ercoli, Lewis, and Moench (1945) found that over 1 unit per ml. of penicillin was required to inhibit growth. Long (1946b) tested thirty strains and obtained sensitivities between 0.02 and 0.004 unit per ml. It is probable that the size of the inoculum used is an important factor in accounting for these differences, though even if an organism is resistant enough to require over 1 unit of penicillin per ml. to inhibit growth the possibility of successful treatment is not excluded.

Experimental Work on Treatment in Guinea-pigs

Reports on the treatment of experimental diphtheria in guinea-pigs are conflicting, Young and Mood (1945) claiming that infection could be prevented by extremely small amounts of penicillin mixed with the inoculum, and cured by larger doses given as long as 23 hours after inoculation with a larger dose of culture. Ercoli, Lewis, and Moench (1945), on the other hand, state that penicillin had only a negligible action on the course of an infection following a small inoculum.

It would appear that there is not sufficient evidence on which to judge the effect of penicillin on artificially induced diphtheria in the guinea-pig; but even if the evidence were conclusive it is doubtful whether it would be safe to argue from guinea-pig to man. The degree of susceptibility and the lesion resulting from injection of culture in the guinea-pig are not comparable to the naturally occurring disease in man. Further, diphtheria in man is commonly complicated by secondary infection with haemolytic streptococci, Vincent's organisms, and mixed anaerobes. All these organisms are markedly penicillin-sensitive and are almost invariably present in the disease, though the haemolytic streptococcus is less common than the others.

Penicillin-treated Cases in the Literature

Symons (1945) reported the case of a boy of 13 years who received antitoxin and sulphonamides on the second day of the disease. One day later, as a result of the development of bull-neck and spreading of the membrane, penicillin was administered, 24,000 units being given three-hourly. This was followed by the membrane "separating, disintegrating, and almost disappearing within 24 hours." *C. diphtheriae gravis* and haemolytic streptococci were obtained from swabs before treatment.

Archer (1945) describes the dramatic improvement in the local condition of a patient with "mixed K.L.B., haemolytic streptococci, and Vincent's infection." Diphtheria antitoxin and "antistreptococcal serum" had been given previously without effect. Christie and Preston (1946) refer to two patients both with mixed *C. diphtheriae intermedius* and haemolytic streptococcal infections. Case 1, aged 15 years, had severe pharyngeal diphtheria with a bull-neck. The day of the disease is not given, nor is the state of activity of the membrane. He was treated with antitoxin and a sulphonamide on admission; three days later a petechial rash appeared, and systemic penicillin (100,000 units a day) with an hourly throat spray (500 units per ml.) was started. The throat had almost completely cleared in another two days. Case 2, aged 17, had severe pharyngeal diphtheria of "not more than three days' standing." On admission the patient was treated with antitoxin and penicillin as in the previous case. The membrane separated in two days, though the general condition remained unchanged. Death occurred from heart failure, preceded by immobility of the palate.

Dodds (1946) reported 13 cases treated with penicillin and antitoxin, and 13 controls treated with antitoxin alone. *C. diphtheriae gravis* is stated to have been present in a "high proportion" of these cases, though exact figures are not given; neither is the presence or absence of secondary infection noted. 200,000 units of penicillin were administered daily for two days, followed by 100,000 units daily for three to six days. The conclusions reached were that penicillin "appeared to have been in some degree beneficial in most cases treated," though it "seemed to have little effect on the rate of clearance of the membrane." Symons (1946) reported a further case from which virulent diphtheria bacilli were not isolated.

De, Chatterjee, and Ganguli (1947) describe the successful treatment of 27 Indian children alleged to be suffering from diphtheria, penicillin being administered by three-hourly injections of 10,000 units. Antitoxin was withheld, since the work was undertaken "to ascertain whether the drug can be used in the place of serum," "the risk being minimized by selecting early cases, under the assumption that the child can destroy and/or eliminate a certain amount of diphtheria toxin." Of the 27 cases treated 11 are described as bacteriologically negative; in the remainder the organisms appear to have been identified on morphology alone. In view of the unusually high fever (10 of the patients had temperatures between 102 and 104° F. (38.9 and 40° C.)) it is unfortunate that no indication is given of the presence or absence of secondary infection and, in particular, of haemolytic streptococci. Their cases are classified into four groups. Group I: early cases, bacteriologically positive. Group II: early cases, bacteriologically negative but clinically diagnosed as classical diphtheria. Group III: moderately severe cases, bacteriologically

positive. Group IV: Moderately severe cases, bacteriologically negative but clinically diagnosed as classical diphtheria.

The early cases (Groups I and II) gave histories of from two to six days' illness, the remainder (Groups III and IV) from three to seven days', making it difficult to appreciate the significance of the term "early." Clinical observations are brief, a single word such as "good" or "fair" describing the general condition of the patient, while the word "patch" describes the membrane, its removal being the sole local change recorded in response to treatment. Fuller information will be required before the significance of this can be assessed, but in the meantime the treatment of diphtheria with penicillin without the early adequate administration of antitoxin can only be condemned. The argument of economy cannot carry any weight against the experimental and clinical evidence to the contrary and the considerable risks involved.

Karelitz *et al.* (1947) record the results of treating 80 cases of diphtheria with antitoxin and penicillin; 42 controls were treated with antitoxin alone. The investigation was bacteriologically controlled. The dosage of penicillin employed was 20,000 units three-hourly for one group of patients and 20,000 units two-hourly for a second; a third group was treated by a penicillin spray; while a fourth was given 20,000 units three-hourly with a penicillin spray.

The conclusions reached were that systemic penicillin in this dosage rendered patients bacteriologically negative for *C. diphtheriae* more rapidly than controls treated with antitoxin alone. Toxic complications and the time that membrane persisted were not reduced in the former group, but oedema and soreness were relieved and complications due to pyogenic organisms were less frequent than in the group treated with antitoxin alone. After five days' penicillin treatment 27.5% of patients showed positive throat cultures as compared with 100% of controls. Local treatment alone with penicillin was ineffective.

Personal Observations

The aim in penicillin treatment of diphtheria is the rapid elimination of pathogens, with the prevention of further toxin formation. The evidence available suggests that penicillin is effective in treatment, particularly when secondary infection is present. The work of Karelitz *et al.* shows a substantial reduction in corynebacteria resulting from a dosage of penicillin between 160,000 and 240,000 units a day, though even then 27.5% of patients yielded positive swabs at the fifth day.

In order to judge the most effective dose information is required as to the effects of penicillin in very much larger dosage than has commonly been employed hitherto. Long (1946b) suggested that 1,000,000 units of penicillin were required to eliminate penicillin-sensitive organisms from the throat and gum pockets within 24 hours, and expressed the opinion that less than 500,000 units a day were inadequate in the treatment of diphtheria. Three cases were mentioned in support of this view. It is proposed to describe these cases in detail together with observations on a further three cases. The penicillin treatment and bacteriological investigation were undertaken through the courtesy of Dr. Nathan, medical officer of health for St. Albans, who directed all other details of treatment, including the administration of antitoxin. In all cases daily swabs were taken for more than a month, though the length of time varied from patient to patient.

Case 1

This patient, a man aged 20, was seen at 3.30 p.m. on the fourth day of the disease as judged from his earliest symptom. He was ashy grey, cyanosed, with a massive bull-neck, in pain, and had severe dysphagia. Breathing was partially obstructed. Fetor was intense and a thick sputum was being coughed up with difficulty. Adherent membrane with an active spreading edge covered fauces, tonsils, and uvula. The swelling was so intense that it was not possible to view the post-nasal space, larynx, or trachea. The patient had received 20,000 units of antitoxin intramuscularly on the previous day and 80,000 units intramuscularly on the same day. Penicillin treatment was started, a million units being given in the day by three-hourly injection; this was maintained for three days.

On the next day, at 11.30 a.m., the patient was pink in the face and non-toxic, and felt better. The active glistening edge of the membrane had dulled and it was no longer adherent. Fetor was absent and the bull-neck reduced in size. On the third day of penicillin treatment the patient's appetite had returned, the membrane had separated, and long strands together with altered blood were being coughed up. Obstruction to breathing was a source of continued anxiety, and tracheotomy was considered. The clinical picture was all the more remarkable because the patient felt and looked comparatively well. No complications followed and he recovered. *C. diphtheriae gravis* was isolated in large numbers on the first day of the disease. No haemolytic streptococci and no Vincent's organisms were demonstrated. After this, daily swabs and examinations of membrane failed to reveal any pathogens. (Penicillinase was added to the medium.) The organism was inhibited by 0.02 unit of penicillin.

Case 2

A girl of 13 years was seen on the third day of the disease as judged by the first symptom. She had received 80,000 units of antitoxin intramuscularly. The medical officer of health and the matron considered the prognosis to be hopeless. The patient was very toxic, ashy grey, and collapsed; pain appeared to be intense, and she was delirious, and an adherent early active spreading membrane covered tonsils, fauces, uvula, and palate almost to the teeth. Bull-neck was marked. Penicillin treatment was started, a million units being given in the day by three-hourly injection; this was maintained for three days. The same night the membrane was coughed off intact. When seen by me the next day she appeared to be non-toxic and was mentally alert. There were no complications and recovery was complete. *C. diphtheriae gravis* was isolated in large numbers before treatment and twenty hours after the commencement of penicillin, but not subsequently. The organism was inhibited by 0.02 unit of penicillin, as in the previous case. Haemolytic streptococci were present in large numbers; they were not demonstrated again after treatment had started.

Case 3

A woman aged 32, with severe diphtheria, was seen on the second day as judged by the history, though the appearance of the membrane suggested a later stage of the disease. The patient felt ill and looked toxic, pain was moderate and dysphagia pronounced. Adherent membrane spread from both tonsils on to the faucial pillars to the uvula. (It did not appear to be extending.) Oedema and swelling were marked, and she had a mild bull-neck. 80,000 units of antitoxin had been given intramuscularly. It was decided to try half a million units of penicillin; it was realized that the dose might be too small, since it would be barely sufficient to remove the most penicillin-sensitive organisms from the oral cavity within 24 hours. (The reason for giving the small dose in this case was because I had previously found that patients treated with systemic penicillin began to lose penicillin-sensitive organisms from deep gum pockets when a dose of half a million units was given in 24 hours. The maximum effect was achieved only by giving one million units in that time. As this case seemed less toxic I wanted to try to assess the value of the lower dosage.) One day later the membrane had separated from the left tonsil, but was partly attached to the right. The patient was non-toxic and symptom-free. She recovered, but her convalescence was complicated by immobility of the palate and bradycardia. *C. diphtheriae gravis* was isolated in large numbers from swabs and membrane before treatment. The organisms were also demonstrable in small numbers 24 hours later. A haemolytic streptococcus not belonging to Group A was also present in

spite of the fact that it was markedly penicillin-sensitive. This suggests that the dosage was too low. The strain of *C. diphtheriae gravis* was inhibited by 0.004 unit of penicillin.

Further Cases.—Three further cases have been treated. All were mild, all received one million units of penicillin a day for three days, and in none was I able to demonstrate diphtheria bacilli after the first day's treatment.

Discussion and Conclusions

Though there is agreement that *C. diphtheriae* is penicillin-sensitive, considerable disagreement exists as to the degrees of sensitivity recorded. A possible explanation is the absence of any standard technique for the estimation of sensitivity, and in particular of the size of the inoculum.

The experimental work in animals has produced conflicting results, so that there is little evidence on which to judge the possibility of effective treatment in man.

An attempt has been made to review all the cases of penicillin-treated diphtheria that have been described in the literature at the time of writing. In this country no case of diphtheria without secondary infection appears to have responded to treatment in a convincing fashion. By far the most important observations on this subject are those of Karelitz *et al.*, who, in spite of relatively large dosage (160,000–240,000 units a day), failed to observe any increase in rate of clearance of the membrane or any reduction in the incidence of toxic complications. The value of their report is impaired by their failure to use tellurite media and penicillinase for culture purposes; if they had done so their figures for the persistence of diphtheria bacilli would probably have been from 10 to 30% higher.

The most valuable criterion on which to judge the response to penicillin treatment would appear to be the time taken for *C. diphtheriae* to be eliminated from the lesions, thus excluding the effect of secondary infection. The dose of penicillin employed might reasonably be supposed to be that which reduces this time to the minimum.

Evidence is presented that *C. diphtheriae* can be eliminated in under 24 hours in severe cases of diphtheria with a dosage of 1,000,000 units a day. Though a smaller dose than this would probably be inadequate, a larger dose might be even more effective.

Summary

The available experimental and clinical evidence on the penicillin treatment of diphtheria is reviewed.

Experimental and clinical evidence is brought forward to show that it is possible to remove diphtheria bacilli from the upper respiratory tract within 24 hours.

A plea is made for larger dosage; at least 1,000,000 units a day would appear to be desirable in severe cases.

The value of penicillin is particularly striking in the presence of secondary infection.

The importance of early adequate antitoxin administration is stressed.

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SPLINTS FOR FRACTURED NOSES

BY

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Fractures of the nose are common injuries, but their early treatment is often unsatisfactory because displacement is obscured by haematoma and oedema. If telescoping of the septum does not obstruct the airway and there is no lateral deviation or depression of the bridge-line, no active surgical treatment is required. If any or all of these displacements have occurred, early treatment by the classical Gillies–Kilner (1929) technique of disimpaction and reduction yields excellent results with a minimum of discomfort to the patient. Should the displacement be missed in the early stages serious disability and disfigurement result, which can be put right only by more extensive procedures such as nasal refracture or bone-grafting (Oldfield, 1944).

After reduction of a recently fractured nose a simple type of splint is required such as a "cellona slab" (Fig. 1),

FIG. 1

FIG. 2

FIG. 1.—A "cellona slab" used for splinting a recently fractured nose after reduction.

FIG. 2.—A Safian brace.

a collodion splint reinforced by a moulded lead plate, or a Safian brace (Fig. 2), all of which serve to hold the nose in the correct position until union occurs in the correct alignment. This usually takes place in a very short time. If the bridge-line has been depressed, the "St. Louis method" is indicated (Fig. 3). Nasal refracture is required

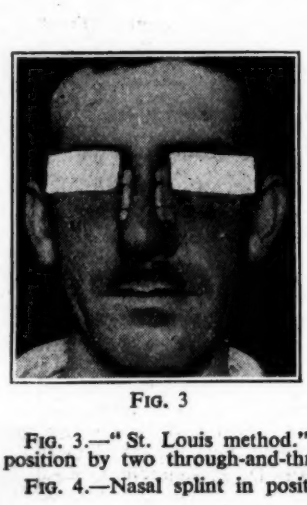

FIG. 3

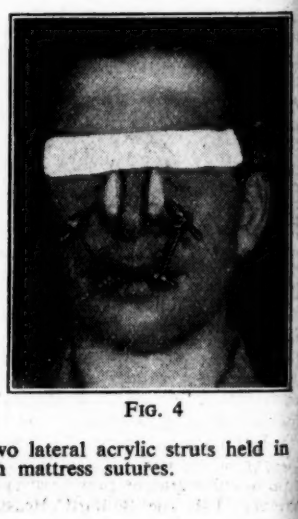

FIG. 4

FIG. 3.—"St. Louis method." Two lateral acrylic struts held in position by two through-and-through mattress sutures.

FIG. 4.—Nasal splint in position.

when the nose has been allowed to unite in malposition. Even if over-correction has been attained and a wedge of bone removed from the convex side there is always a tendency for the nose to slip back into malposition unless fixed by a rigid splint for a considerable period.

A plaster head-cap is notoriously inefficient as a fixed base for facial splintage, but a dental-cap splint attached to the maxillary teeth gives an excellent base for rigid fixation of a nasal splint. The splint described below has the added practical advantage that each lateral element can be adjusted in three planes and pressure can be applied wherever it is required. The patient does not find it uncomfortable to wear, as no head-cap or straps are necessary. It requires the close co-operation of a dental colleague for the fixation of the cap splints and at least four sound maxillary teeth for efficient anchorage (Fig. 4).

Construction of the Splint (Fig. 5).—(A) One brass plate for attaching the extraoral portion to a dental-cap splint. The plate carries two arms of brass rod, gauge 4 mm., which are shaped to avoid the upper lip. (B) Four modified Clouston-Walker universal joints for connecting A to C by means of straight brass rods. (C) Two nasal supports, each consisting of a rubber-cushioned brass plate and arm. Small nuts are threaded on to the ends of all the rods so as to prevent the apparatus from becoming disconnected when the universal joints are slackened.

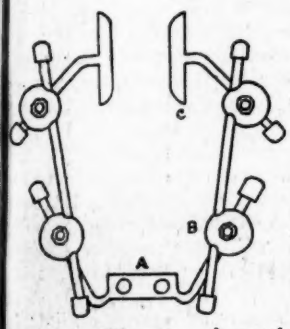

FIG. 5.—Diagram of nasal splint. (For description, see text.)

Method of Use.—Stage 1: Preliminary to the operation for refracture and reduction, an impression is taken of the maxillary teeth and then a cast-metal cap splint is made and fixed in position on the patient. Stage 2: At the end of the operation the nasal splint is attached to the dental-cap splint by means of two 6-B.A. screws. The surgeon places the lateral supporting cushions in the desired position while an assistant locks all four universal joints with a spanner.

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The Société Internationale de Chirurgie will hold its twelfth Congress in London on Sept. 14–20, with Dr. L. Mayer (Brussels) presiding. Chairman of the English committee is Prof. G. Grey Turner, and the hon. sec. is Mr. W. S. Wright. The subjects to be discussed are as follows: (1) The Operative Treatment of Fractures, by Prof. R. Danis (Brussels); (2) the Role of Penicillin in Surgical Practice, by Sir Alexander Fleming (London); (3) Recent Advances in Arteriography and Venography, by Prof. R. dos Santos (Lisbon); (4) Recent Advances in Vascular Surgery, by Prof R. Leriche (Paris); (5) the Surgical Treatment of Pulmonary Stenosis, by Prof. Blalock (Baltimore); (6) the Role of Vasodilatation in Arterial Diseases, by Dr. J. Diez (Buenos Aires); (7) the Results of Heparin in Surgery, by Dr. Crafoord (Stockholm); (8) Skin Defects: their Repair by Flaps and Free Skin Grafts, by Prof. T. Pomfret Kilner (Oxford); (9) Results of Early Operation in War Wounds of the Lungs, by Dr. M. Bastos-Ansart (Barcelona); (10) Recent Progress in the Treatment of Burns, by a Russian surgeon. Translated summaries of the papers will be circulated beforehand. Members of the society do not pay an additional fee to attend the congress, but the subscription for the years 1939–47 must be paid. The sum is 1,000 Belgian francs. Members who have already paid a subscription at a higher rate will be credited with the extra amount; those who have not yet paid their subscription should send it to Dr. Paul Lorthioir, 76, rue Faider, Brussels, or to the local treasurer if transfer of funds out of the country is not allowed. Those intending to be present should notify Dr. L. Dejardin, General Secretary, 141, rue Belliard, Brussels.

Medical Memoranda

Temporary Hydronephrosis

The following case report seems to be interesting enough to merit publication.

CASE REPORT

The patient, a corporal aged 25, was admitted to the British Military Hospital, Amiriya, on Oct. 9, 1946, with a history of urinary dysfunction for three days. This consisted of dysuria, a poor stream, and frequency—he passed urine three times nightly. He had no penile discharge, and the prostate was slightly enlarged but not tender. Pus could not be forced into the external urinary meatus on prostatic massage. Full physical examination elicited no further abnormality.

Two days after entry into hospital his symptoms were unchanged, but the prostate was now very large and tender, prostatic massage producing a free flow of pus. He developed a pyrexia of 101° F. (38.3° C.), which became intermittent. A diagnosis of acute prostatitis was made. Direct smears after prostatic massage were negative for organisms on repeated occasions. Five midstream urine specimens contained many pus cells, but no other abnormality was found. No organisms were grown. Three 24-hour urine specimens were negative for acid-fast bacilli, both on culture and on guinea-pig inoculation. The blood urea was 32 mg. per 100 ml. The white blood cells numbered 10,600 per c.mm. (polymorphs, 70.5%; lymphocytes, 19.5%; monocytes, 8%; eosinophils, 2%). A skiagram of the chest showed no evidence of a lung lesion.

FIG. 1.—Pyelogram showing gross bilateral hydronephrosis and hydro-ureter.

Seven days after the sudden marked prostatic enlargement an intravenous pyelogram was performed. This showed gross bilateral hydronephrosis and hydro-ureter (see Fig. 1). He was started on a course of sulphadiazine and penicillin, 40,000 units three-hourly, and this was continued for five days. During this time his symptoms were unchanged, he still had an intermittent pyrexia and his prostate remained large and tender. The chemotherapy produced no apparent result and was discontinued after five days. On Oct. 28 the prostate was much smaller, the temperature fell and remained normal, and his urinary symptoms became less pronounced. He still complained of slight pain on urinating, but his stream was good and he passed urine only once or twice nightly. On Nov. 11 he was symptom-free and the prostate was normal in size. A second intravenous pyelogram showed a great reduction in the size of both renal pelves and well-pointed calices (see Fig. 2).

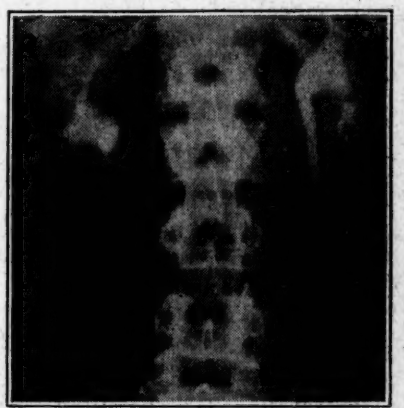

FIG. 2.—Pyelogram, taken four weeks after Fig. 1.

We can conclude that the hydronephrosis developed in one week, as the enlargement of the prostate occurred quite suddenly on the third day after admission. The pyelogram showing gross hydronephrosis and hydro-ureter made us think that these changes might be permanent. It may not be generally appreciated that marked hydronephrosis may occur suddenly and can be reversible if the obstruction is removed early enough. These facts are well illustrated by this case.

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Reviews

NUTRITIVE VALUE OF FOODS

The Nation's Food. A Survey of Scientific Data. Edited for the Society of Chemical Industry (Food Group) by A. L. Bacharach, M.A., F.R.I.C., and Theodore Rendle, F.R.I.C. With an Introduction by Sir Joseph Barcroft, F.R.S. (Pp. 349. 18s.) London: Society of Chemical Industry. 1946.

Bacharach writes on the relative values, for human nutrition, of wheat offals eaten as such by human beings and given to milch cows as follows: "But knowledge and understanding of the facts . . . is essential to any nationally sound solution of the problem." In 1939, when Britain had to formulate a food policy, many of the facts discovered since the first world war were scattered throughout the literature, some were little known and others misreported. The Food Group of the Society of Chemical Industry held a series of meetings from 1940 to 1943 at which thirty-two scientists discussed the nutritive value of foods. The papers were published at the time in *Chemistry and Industry*; they have now been revised and collected in this book, and even those who have made a special study of the subject will find it most convenient. The foods considered are eggs, potatoes, other vegetables, cereals, and meat. It is useful to have readily available definite statements about, for example, the distribution of ascorbic acid in potatoes and the effects of peeling on the degree of retention of ascorbic acid. Those who have not had the opportunity to collect and file such data will find information here that is in no other book.

Subjects that the authors discuss and about which many specialists may know little include the effects of cooking on nutritive value and the variations in the composition of meat. It is interesting to learn how great the losses may be when eggs are poached, why potatoes turn black on cooking, and that the temperature inside boiled eggs and roast beef may be too low to kill pathogenic bacteria. The chapters on the biology of potatoes and of fish are interesting, particularly the former, where Dr. Salaman discusses the diseases of potatoes, on which he has done much work. Here we find the answer to the question, "Why do we buy Scotch seed potatoes?" Food control is still with us; the facts collected in this book should help to solve its problems.

J. R. MARRACK.

BOVINE TUBERCULOSIS IN MAN

Studies on the Risk of Infection with Bovine Tuberculosis to the Rural Population, with Special Reference to Pulmonary Tuberculosis. By Jón Sigurdsson. (Pp. 250. 15s.) Copenhagen: Einar Munksgaard. London: Geoffrey Cumberlege, Oxford University Press. 1945.

The studies of K. A. Jensen and his colleagues during the ten years or so before the war showed that in Denmark the distribution of tuberculosis of bovine origin in man corresponded fairly closely to that of tuberculosis in cattle. Following this lead, Dr. J. Sigurdsson has investigated what part the bovine tubercle bacillus plays in the causation of pulmonary tuberculosis and how the organism gains access to the human respiratory system. Between 1932 and 1940 a total of 566 strains of tubercle bacilli from patients with pulmonary tuberculosis in different parts of Denmark were typed at the State Serum Institute, Copenhagen. Nearly all the patients were over 15 years of age, and over half of them came from Ribe County in the west of Denmark. Ninety-one of the strains were of bovine and 475 of human type. Investigation of the patients' place of residence showed that 40.6% of those infected with the bovine type had lived during the previous two years in rural districts, 28.2% in urban and rural districts, and 3.6% in urban districts. When the history of contact with tuberculous cattle was inquired into, it was found that of 67 rural patients infected with the bovine type 94% had been in contact with strongly tuberculous herds, 6% with herds containing healthy reactors, and none with only tuberculin-negative herds. The conclusion reached, therefore, is that pulmonary tuberculosis of bovine origin in man is essentially an occupational disease, resulting from close contact with tuberculous cattle. The results of two special surveys in country districts supported this view. The author provides evidence to show that infection occurred usually not by ingestion but by inhalation.

This is a most interesting and well-documented monograph. It goes far towards clarifying the problem of the mode of infection of the human being with the bovine tubercle bacillus.

[This monograph was also commented on in a leading article in the *Journal* of May 24. ED., *B.M.J.*]

G. S. WILSON.

CLINICAL PSYCHOLOGY

Modern Clinical Psychology. By T. W. Richards, Ph.D. (Pp. 331. 17s. 6d.) New York and London: McGraw-Hill Publishing Co., Ltd. 1946.

This book is intended for non-medical psychologists. The author defines clinical psychology as the study of the behaviour of the individual, in contrast to general psychology, which covers the general behaviour of men and animals. He considers that the psychologist should study the normal behaviour and minor maladjustments of the individual, leaving greater disorders to the psychiatrist. However, since their interests must sometimes overlap, the psychologist should know something of mental and even physical disease. He indicates three fields of observation in studying the behaviour of the individual: (1) Motivation, which may be security, wealth, fame, or individualization and freedom from social ties; (2) capacity, chiefly intellectual, which may be innately defective or obscured by emotional conflict; (3) control, by which the author means not the Hughlings Jackson concept of individual cortical control of lower impulses but the effect of environmental inhibitions on individual impulses and the efforts to avoid the impasse, such as withdrawal of energy or of the whole personality, hysterical manifestations, and obsessive compulsive behaviour.

The rest of the book contains details of how the clinical psychologist may gain information and insight into the personality of his patient. The estimation of capacity necessitates various forms of intelligence test, and these are described. Motivation is related to aggressive drives and especially to sexual adaptation. The author stresses the ubiquity of the homosexual component, which may be expressed apart from overt genital behaviour. He refers briefly to the perversions as distortions of heterosexual adjustment. In estimating "control"—the influence of the environment—he relies on the Rorschach tests and claims that they allow the subject to display his reactions to the environment without the intervention of suggestions from the examiner. He also uses the "Minnesota Inventory"—a series of propositions presented to the subject who divides them into "true and false." In a chapter on precipitation and predisposition, he considers the hereditary, constitutional, and disease factors influencing the personality, and in a final chapter on readjustment briefly indicates the lines of treatment required—some degree of analysis, though not necessarily with the most complete psycho-analytic technique.

The medical reader may ask whether the non-medical psychologist should undertake all this and, further, whether the nearly normal subject requires such an elaborate investigation except for purposes of pure research. May not the psychologist be tempted to treat the more severe case? However, the medical psychologist will be interested to read Dr. Richards's clear exposition of methods of investigating the personality.

R. G. GORDON.

PROBABILITY IN MEDICINE

Whither Medicine. From Dogma to Science? By Antony Fidler, M.D. (Pp. 116. 6s.) Edinburgh: Thomas Nelson and Sons.

In this little book the author attacks what he calls "causal medicine" and proposes that the "medicine of probability" be substituted for it. In the first part of the book he has no difficulty in demonstrating that the generally accepted idea of causes of disease is unacceptable to the philosopher and that what we take to be a cause is often no more than a deduction from certain "sense-data." For example, because insulin is obtained from the pancreas by a chemico-physical process it is a fallacy to conclude that insulin is produced by the gland *in vivo*, and the fact that certain lesions follow the inoculation into a guinea-pig of a fluid which cannot otherwise be demonstrated to contain bacteria does not conclusively prove that the

fluid contained tubercle bacilli. Many other investigators have made these and similar observations. He shows that medicine and its ancillary sciences are based not on what is proved but on what is probable, and since the estimation of probabilities is the function of the statistical method, we support Dr. Fidler when he advocates the more frequent use of statistics in prognosis and therapeutics.

His enthusiasm for numbers leads him, however, to some curious conclusions. He appears to believe that the "medicine of probability" will supplant "orthodox" medicine, yet obviously its true function is to aid it. He expects that his statistical tables, when they are sufficiently elaborated, will enable the physician to use them for the prognosis of disease in the individual: "We imagine that with the development of the numerical scheme we shall be able to predict with a probability bordering on certainty that this particular individual will die within the first week, that that individual will live fifty-one weeks, whereas another will live four years and nine weeks, and so forth." He advises us also to reject the objective criteria of disease—admittedly inadequate though they are—and to substitute for them "the subjective feeling of the person concerned." "Health is a feeling of comfort and 'disease' a feeling of discomfort."

Now when we are accustomed to pay close attention to the patient's story this definition is good, but it is not sufficient. Are we to ignore the *x*-rayed lung lesion, the silent mitral stenosis, and the unexpected up-going toe because our patient makes no complaint? Are we to ignore Freud's work and accept what the patient says at its face-value? Is the manic not ill because he protests his well-being? Measurement is the basis of science and the statistical method is but an extension of it. In bidding us abandon the objective approach to our patients as materialistic, Dr. Fidler would curb the growth of medical science.

D. V. HUBBLE.

The period of six years which has elapsed since the issue of the fourth edition of L. B. AREY'S *Developmental Anatomy* in 1940 and the publication of the new fifth edition (W. B. Saunders Company; 35s.) has been marked by important additions to our knowledge of the early developmental stages in human and macaque monkey embryos. Brief descriptions of this work, which have been largely carried out by well-known American embryologists, have been incorporated in the present volume, and simplified reproductions of many of their illustrations are also included. Moreover, allusions have been made to much recent work which has been accomplished in connexion with the determination of sex, and the assumed equal division of distribution of genes which accompanies the splitting of chromosomes, and the bearing of this assumption on heredity. The hormonal actions and control of the anterior pituitary gland, ovarian follicles, and corpora lutea, and the interstitial cells of the testis, are also discussed in connexion with their relation to the reproductive cycle, the induction of ovulation, the functional development of the mammary glands during pregnancy, and also the development in both sexes of the sexual characters. Work on experimental embryology has also received due notice and is discussed in relation to the influence of environment upon growth and variations, induced by such factors as (1) mechanical force; (2) physico-chemical agents; (3) radiations, such as those of heat, *x*-rays, or ultra-violet rays; (4) chemical, through ionic changes. Considerable changes and improvements have been made in other sections of the book, more especially by the introduction of a large number of explanatory drawings, which make the study of what is sometimes regarded as a difficult subject easy and attractive for a beginner, as well as for more advanced students and medical practitioners.

Ophthalmic Literature, a new journal published quarterly by the British Journal of Ophthalmology, Ltd., under the editorship of Sir Stewart Duke-Elder, is a welcome addition to the literature of ophthalmology. It is working in close association with the B.M.A. Abstracting Service. The editor suggests in the preface that ophthalmology has become too isolated a specialty in recent years; this journal should provide that wider background that ophthalmologists are seeking. Abstracts of papers on general medicine, surgery, and pathology that have an ophthalmological bearing will be printed and references included to the current literature in optics, physics, physiology, biochemistry, and so on. The present number opens with a review of penicillin in ophthalmology, characterizing its value as immense and on occasions revolutionary, and concluding with 3½ pages of references. There follow over 200 abstracts from the whole field of ophthalmology. The journal is an excellent production and the matter well displayed and printed.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

The 1946 Year Book of Urology. By Oswald S. Lowsley, M.D., F.A.C.S. (Pp. 392. 21s.) London: H. K. Lewis. 1947.

A summary of recent advances in urology.

Management of Common Cardiac Conditions. Edited by William G. Leaman, Jr., M.D., F.A.C.P. (Pp. 306. 24s.) London: J. B. Lippincott. 1946.

Subjects discussed include the penicillin treatment of subacute bacterial endocarditis, the medical treatment of hypertension, and psychosomatic aspects of cardiovascular disease.

Sinn und Gehalt der Sexuellen Perversionen. By Dr. M. Boss. (Pp. 130. 12 Swiss francs.) Berne: Hans Huber. 1947.

An investigation into the nature of sexual perversions, with case histories.

Die Bedeutung der Seelenkunde von Klages für Biologie und Medizin. By Dr. E. Frauchiger. (Pp. 99. 6.80 Swiss francs.) Berne: Hans Huber. 1947.

An account of von Klage's conception of the soul in biology and medicine.

Die Bluteiweisskörper des Menschen. By P.-D. Dr. med. F. Wuhrmann and Dr. Ing. Chem. Ch. Wunderly. (Pp. 354. 36 Swiss francs.) Basle: Benno Schwabe. 1947.

The blood proteins in man and their clinical significance.

Metallschädigung bei Osteosynthesen. By Dr. R. Nicole. (Pp. 74. 8 Swiss francs.) Basle: Benno Schwabe. 1947.

A study of the damage that may be caused by the metals used in bone fixation.

Nucleic Acid. Symposia of the Society for Experimental Biology. No. 1. (Pp. 290. 35s.) Cambridge: University Press. 1947.

Papers on nucleic acid by various authors read at Cambridge in July, 1946.

Law Relating to Hospitals and Kindred Institutions. By S. R. Speller, LL.B. (Pp. 399. 22s. 6d.) London: H. K. Lewis. 1947.

A textbook on hospital law for hospital administrators, with an introductory outline of English law.

Diseases of the Basal Ganglia and Subthalamic Nuclei. By D. Denny-Brown, M.D., F.R.C.P. Ed. by H. A. Christian, A.M., M.D., F.A.C.P. (12s. 6d.) Oxford: Geoffrey Cumberlege. 1947.

An account of diseases that result from disturbances of the structure and function of the basal ganglia and subthalamic nuclei.

Endocrine Function of the Hypophysis. By H. B. Friedgood, M.D. Ed. by H. A. Christian, A.M., M.D., F.A.C.P. (25s.) Oxford: Geoffrey Cumberlege. 1947.

Describes the development, structure, and function of the hypophysis and its hormones.

Treponematosis. By Ellis H. Hudson, M.D., D.T.M.H. Ed. by H. A. Christian, A.M., M.D., F.A.C.P. (12s. 6d.) Oxford: Geoffrey Cumberlege. 1947.

The main theme is that syphilis, yaws, and the "syphiloids" are caused by the same species of treponema.

Ulcer of the Stomach, Duodenum, and Jejunum. By Ralph C. Brown, M.D. Ed. by H. A. Christian, A.M., M.D., F.A.C.P. (12s. 6d.) Oxford: Geoffrey Cumberlege. 1947.

A clinical account of peptic ulceration, with differential diagnosis and treatment.

Introduction to Surgery. By V. K. Frantz, M.D., and H. D. Harvey, M.D. (Pp. 216. 12s. 6d.) Oxford: Geoffrey Cumberlege. 1947.

An elementary introduction to pathology, surgical technique, and anaesthesia.

Essentials of Clinical Proctology. By M. G. Spiesman, B.S., M.D. (Pp. 238. 21s.) London: William Heinemann. 1946.

Discusses the embryology, anatomy, surgery, and post-operative care related to proctology.

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THE PSYCHOLOGY OF SKILL

The subject of human skill is of interest to the medical profession in two ways. First, one of the commonest results of disease and ill-health is an impairment of skill, in the broader sense of that word, while the restoration of skill is one of the chief aims of the physician. Secondly, the practice of medicine is itself a supreme example of human skill, and consequently it is desirable that those who enter the profession should show an aptitude for acquiring that skill and that the instruction they receive should enable them to develop it. If we give the term its widest possible meaning, almost every activity of a living creature is essentially an act of skill. Between the simpler adaptive activities, such as respiration or digestion, and the highest types of dexterity exhibited by the professional man there is merely a difference of degree. But ordinarily when we talk of skilled actions we mean, as Prof. F. C. Bartlett points out, much more than the mere "basic fact" that an appropriate muscular response is called forth by receptor stimulation. We mean "behaviour in which many receptor and effector functions are interlinked, all joined in the pursuit of some task which can be evaluated and even measured in its own right." Thus skilled behaviour usually implies behaviour that has been acquired or developed by experience. For this reason the study of skill has formed one of the chief topics for research in modern psychology.

In his Oliver-Sharpey lectures, delivered at the Royal College of Physicians at the beginning of the year and printed elsewhere in this and in our previous issue, Prof. Bartlett gives an admirable review of recent efforts to study and measure different forms of human skill. The investigations which he describes have for the most part been carried out in the Psychological Laboratory at Cambridge. They have been largely rendered possible by the assistance given by the Medical Research Council, by the Flying Personnel Research Committee of the Royal Air Force, and by the Ministry of Supply. Some of his most arresting and instructive examples are drawn from experiments carried out in the study of the skill required by pilots or bomb aimers. The ways in which this type of operational skill may be affected by undue stress, by neurotic predisposition, and even by temperamental idiosyncrasies, is further illuminated by the reports recently published by the Air Ministry,[1] and discussed in the leading article at page 891 of this issue. Perhaps the chief lesson to be learnt from these experimental studies is that in the past neither the purely physiological approach nor yet the purely psychological approach has proved adequate; progress has been most rapid where the two standpoints have been combined.

All skilled responses involve both grading and timing. Skill, whether bodily or mental (and what is popularly called bodily skill is essentially mental in its nature), has "from the beginning the character of being in touch with demands which come from the outside world." Hence one of the most obvious methods for evaluating the efficiency of a skilled action would seem to be to measure the success with which it is graded to meet the specific needs of the external situation. But this, as Prof. Bartlett rightly observes, is by no means enough: the timing of the component reactions is far more important. "If we could understand the simple timing mechanisms which the body and mind must be able to use and the way in which they work we should have got much further towards a measure of the degree or level of skill." Nearly one hundred years have passed since Donders first worked out the technique of measuring reaction times. Yet the investigation of reaction times by the classical method has thrown but little light on the nature of the reactions involved in skilled behaviour or on the problem of their measurement. Indeed, until recently, most of what we know of the acquisition of skill, and of the best method of measuring it, was due to the investigations of the educational psychologist working in the classroom, supplemented by studies of animals carried out partly in the laboratory and partly in the field.

On the loss of skill the most brilliant researches are still those initiated by Henry Head; and the experimental methods adopted by Head himself in his studies of aphasic, apraxic, and ataxic patients have formed a suggestive starting-point for many of the ingenious procedures worked out by Bartlett and his colleagues. Some of the conclusions that he has reached have a direct bearing on methods of treatment and re-education. One of the first signs of diminished skill is that the operator, instead of remaining calmly concentrated on his ultimate object, becomes conscious or even self-conscious about the methods he is employing: "there is an increased awareness of what the body is striving to do." Slowing down the action, instead of making it easier as is commonly supposed, often makes it harder. Thus, paradoxically, skill that is threatening to deteriorate can often be restored by an objective increase in the difficulty of the action. To forestall a deterioration an essential condition is a continuing but moderate degree of novelty—a novelty which is great enough to oppose both the peripheral processes of adaptation and the central tendencies to mechanization, and yet not so great as to throw the whole process out of gear.

The industrial psychologist, adapting the devices of the educational and clinical psychologist to the problems of selection and training for industry, has still further added to our knowledge. Yet he also has been too greatly engrossed with what is commonly called "repetitive skill"

[1] Air Publication 3139. *Psychological Disorders in Flying Personnel.* H.M.S.O., 1947.

In practical life, when we attempt to assess a man's efficiency, there are two thresholds with which we are really concerned: the one is a measure of what the operator is able to do and the other a measure of what he treats as worth doing. Thus, what Lewin and his pupils have termed the "level of aspiration" may be quite as important as the actual level of success. These conclusions have been amply confirmed by a recent report[2] on work carried out during the war. This report of an "Expert Committee" is the subject of an annotation at page 892 of this issue. The assistance of psychologists in testing and assessing recruits for different types of aptitude and skill proved invaluable in all three Services. Their success has prompted the suggestion that similar methods might usefully be employed in selecting applicants for the Civil Service, for various university courses, and in particular for the medical profession. Such methods have been employed in the past in assessing entrants to the teaching profession, particularly at times when the number of applicants has been far in excess of the number of vacancies. In a paper[3] published in our last Educational Number D. H. Smyth described the methods adopted by the Faculty of Medical Sciences at University College, in co-operation with the Department of Psychology, for selecting suitable candidates for the medical profession. The results would appear to agree with those obtained in studies on personnel selection in the Forces. What is called "intelligence"—that is, innate, general, cognitive ability—is the first essential to the acquisition of every form of higher skill. The more complex and the more varied the skill to be acquired, the higher is the intelligence needed to acquire it. Such tests, therefore, have at least a negative value; they indicate which of the applicants are unlikely to complete their couses successfully and to pass the requisite examinations. Tests of this kind will undoubtedly save wastage during the training period. But beyond this they can hardly profess to go. The detection of specialized aptitudes and the assessment of character or personality must be left in the last resort to a competent board of interviewers, and interviewing itself is a highly skilled technique. Above all, what has been found true in the Services will hold good of every profession: "selection and training are not distinct and separable functions, but successive stages in a single procedure."

THE PSYCHIATRY OF WARTIME FLYING

Most of us had some idea of the wartime strain imposed upon the crews of R.A.F. aircraft. We guessed at the high casualty rates, and we imagined the fear, discomfort, monotony, and fatigue which were the essence of so much of their work. Citations of the achievements of such leaders as Cheshire and Edwards gave some insight into the experiences of the members of operational crews, but our understanding was limited by the secrecy which veiled so many of the details of their activities.

The Medical Directorate of the Air Ministry have now published a comprehensive account[1] of the stresses to which air crews were subjected in all types and conditions of flying throughout the war, and the psychological effects of these stresses. "Air Publication 3139" contains two dozen long and thoughtful reports presented to the Air Ministry at different stages of the war. Most of them are detailed clinical and statistical studies of neuroses, with field surveys of their contributory causes carried out by Air Vice-Marshal Sir Charles Symonds and Wing Commander Denis Williams, but there are also statistical analyses of performance by Squadron-Leader D. D. Reid. The work had an urgent practical background and for the most part was concerned with the psychiatric difficulties of men already carrying out duties. There is only one report, though a long one, on the psychological and psychiatric aspects of personality testing and vocational selection.

The size of the problem is indicated by the number of men who had psychological disorders sufficiently severe to call for psychiatric investigation and treatment—nearly 3,000 a year in the last three years of the war. This represented an annual incidence of about 12% in operational bomber crews in the year 1942–3. This means that one in eight of all bomber crews who survived long enough to develop symptoms had them so severely that the squadron medical officer sought psychiatric advice. There seems to have been no pressure upon the medical officer to do this, for an interesting report on the place of the squadron medical officer in preventing neuroses suggests that many more men with psychogenic symptoms were successfully treated on the station than were referred to the psychiatrist. Indeed, a study of the statistical surveys seems to show that the prognosis for return to duty of those who did reach expert psychiatric care was not good; only a little over a third of these men ultimately resumed flying duties. This is no reflection on the psychiatrists, but rather the reverse. It is clear that many of these men were predisposed to breakdown in conditions of operational flying, and as they had already shown inability to withstand the hazards of their duties their removal from them seems eminently sensible. There was a close linear relationship between the assessment of the degree of predisposition to neurosis as a response to flying duties and the likelihood of the man being removed from those duties, through failure to recover from the psychological disorder. The degree of predisposition was assessed on the basis of a life history obtained at one interview. The points which related most closely to an assessment of marked predisposition have been analysed in the report on vocational selection.

In other respects also the serving psychiatrist, who has been something of a whipping boy, particularly in the lay Press, comes out of this critical and factual analysis with distinction. Prof. Bradford Hill and Dr. Denis Williams scrutinized statistically the agreement between independent psychiatrists who carried out several assessments without knowledge of each others' findings. They show in over 500 cases that in most instances agreement was fairly close. For instance, there was agreement in 85% of cases as to

[1] *Psychological Disorders in Flying Personnel of the Royal Air Force. Investigated during the war 1939-45.* Air Ministry: Air Publication 3139. London: H.M.S.O. Pp. 344. 7s. 6d.

[2] *Report of an Expert Committee on the Work of Psychologists and Psychiatrists in the Services.* H.M.S.O., 1947.

[3] *British Medical Journal*, 1946, **2**, 357.

whether flying duties had or had not played a significant part in precipitating the illness. In only 2% of cases was there serious disagreement as to the degree of psychological stress experienced in flying, on the basis of a three-point scale. Incidentally, these specialists were hybrids—neuro-psychiatrists—for there was no sharp distinction between neurology and psychiatry such as was made in the Army and Navy. This detailed study of the psychiatric assessment of predisposition to neurosis also contains much interesting material on the personality traits which were found to handicap a man in flying.

In one important respect these collected reports command attention. The authors have presented a mass of psychiatric material, collected from unusually large groups by many psychiatrists, in an objective, and perhaps in some places, in a rather dry statistical manner. Where facts could not be recorded and subjected to statistical scrutiny opinions have been pooled, and whenever possible their validity has been tested. This rigid method of presentation must surely have had some influence in securing the acceptance of the findings by many practical critics in the R.A.F. who, with a highly objective approach to the problems of air crews, would otherwise have rejected the psychiatric method. The serving officer has always been hostile to any theory unsupported by hard facts, but he must have been influenced in his management of aircrew by the evidence presented here. The statistical method has been extended in these reports by orthodox clinical psychiatric studies, and by descriptions of observations made in operational stations and on squadrons, where observation was reinforced by a synthesis of the statements and opinions of senior officers. The reports are in effect a detailed survey of the psychiatry of fear evoked in a highly specific set of circumstances, circumstances so uniform and primitive that the psychiatric situation is an unusually simple one. Because of this—except in the methods employed—the observations have little direct application to the problems of peace. On the other hand, they present a wealth of knowledge which cannot be accumulated in peacetime but which would have immediate application if men had to fly offensively again, whatever might be the conditions and circumstances in which they had to do so.

PSYCHOLOGY AND PSYCHIATRY IN THE SERVICES

In the early years of the war it was apparent to the authorities that both psychiatrists and psychologists had a considerable part to play in the organization of efficiently operating armed Forces. Psychiatrists were called on to treat men suffering from various forms of nervous and mental disorder and to weed out, either from smaller groups such as task forces or from the Service as a whole, those who were specially prone to nervous breakdown or were otherwise unlikely to contribute to operational efficiency. Psychologists were given duties in such fields as security, camouflage, education, and publicity, and had also to provide tests of intelligence and educability which would allow the most effective allocation of individuals. Both groups of specialists had important duties which were not strictly medical, and which involved close liaison with executive officers. It is not surprising that such a revolutionary innovation led to a good deal of criticism, and that at times both psychologists and psychiatrists met with hostility and obstruction. Those least acquainted with these specialties were probably easiest to convince of their value. Psychiatrists found on the whole that they met with more criticism from medical than from executive officers. Psychologists met with more criticism from psychiatrists than from medical or executive officers. The pressing need for specialist advisory and other services on the one hand, and this widespread criticism on the other, led to the appointment of an expert committee to examine and report on the whole problem. Its report is now published,[1] and although it is "after the ball is over" the deliberations of the committee and preliminary knowledge of what its recommendations were likely to be must have greased the wheels of Service machinery at a relatively early stage. Now that the report has appeared it is likely to exercise a decisive influence on the future organization of psychological services of all kinds in the Armed Forces.

Approximately a quarter of the report deals with Service psychology and psychiatry under separate headings: their scope, Service applications, the training of staff, their use in the armed forces of other countries. Conclusions and recommendations follow, and the rest of the volume consists of a number of appendices. The conclusions and recommendations provide an emphatic vindication of the value of applied psychology and psychiatry in this field and a justification for their continuance. Perhaps the most important recommendation is that there should be a considerably greater degree of integration of psychology and psychiatry in the Navy, the Army, and the Air Force. It is suggested that there should be an inter-Service body consisting of the senior Service psychologists; and in psychiatry that there should be some recognized meeting-ground at which the senior Service psychiatrists could discuss common problems and make available to one another the procedures developed in each Service. Close contact should be maintained between field psychiatrists in the three Services, and a central co-ordinating and statistical section should be established for bringing the civilian Neurosis Centres of the Emergency Medical Services into closer contact with one another and with the corresponding Service departments. An interesting omission is that no recommendation is made that the work of psychologists should be done under the direction of psychiatrists.

These recommendations are of crucial importance. To take the field of psychology, work of great practical importance was done in fitting men into Service occupations where they would be most efficiently employed, and in defining the qualities and abilities demanded by these various occupations. As a result there was a much more efficient distribution of man-power within each of the Services. Perhaps even more important than this is the distribution of men between the Services, and implementation of the recommendations contained in this report would be a useful first step in this direction. It is also suggested that all officers should receive some training in the psychological aspects of their duties, and some of them a specialist training; that psychologists should be represented on the principal scientific and advisory committees; and that they should participate as observers in battle operations and exercises. Psychiatrists should, in collaboration with psychologists, contribute to appropriate aspects of selection, classification, training, mental hygiene, and the maintenance of morale; they should be employed in screening procedures; and psychiatric training should be given to both medical and combatant officers in these aspects of their duties.

[1] *Report of an Expert Committee on the Work of Psychologists and Psychiatrists in the Services.* 1947. H.M.S.O. Price 2s. net.

In criticism of the report it must be said that it is extremely indigestible and lacking in technical value. No attempt is made to give in precise and factual terms a description of the conditions encountered, the actions carried out, and the results observed. There is no discussion of methodological developments. The factual material embodied in the appendices is disproportionate, incomplete, and uncritical. For instance, the use of films for time and motion studies of squads of men at work, which was one of the most interesting applications of psychological methods made by the Army, receives scant appreciation and no description. The differences in the use made by the Army, the Navy, and the Air Force of psychological methods in training speak for themselves but are the subject of only brief comment. The association between the present crime wave and desertion from the Services is now publicly acknowledged, but no suggestion is made that psychological methods of personnel management might be more widely applied in serving units.

BACTERIAL WARFARE

If a third World War occurs it is likely to be even more unpleasant than the 1939–45 disturbance. What with rocket-propelled atomic bombs, radioactive sprays, and poison gases calculated to make mustard gas seem no more distressing than a slight overdose of sal volatile, the next war is hardly likely to see many survivors. To complete this tale of horror we are from time to time solemnly warned that bacterial warfare will be freely used.

The idea that infection can be deliberately spread by evilly disposed persons is not new. When Europe periodically suffered from outbreaks of bubonic plague perfectly innocent persons were almost invariably accused of spreading the disease by poisoning wells, an accusation to which, curiously enough, they often pleaded guilty. In the same way outbreaks of trypanosomiasis, cerebrospinal meningitis, and influenza in tropical Africa are generally attributed to the malignant witchcraft of some unfortunate man or woman. Europe, however, is no more civilized than Africa. Despite the various pacts and international conventions which have outlawed bacterial warfare, it would almost certainly have been used had the Nazi rulers of Germany been convinced that it would favour their grandiose aggression. It is now no secret that shortly before the beginning of the last war an enemy agent actually did attempt to gain possession of a virulent strain of yellow fever virus. In the autumn of 1939 Dr. Goebbels, broadcasting from Munich, accused the British of attempting to introduce yellow fever into India by transporting infected mosquitoes from West Africa and liberating them from aeroplanes over Indian cities, the whole scheme being presided over by a high permanent official of the Foreign Office.

There has been so much uninstructed talk of the possibilities of bacterial warfare that a critical and well-documented discussion such as that provided by Rosebury, Kabat, and Boldt[1] is of considerable value. Bacterial warfare, including under that term the use of pathogenic protozoa and viruses, can obviously be directed not only against man himself but against his domestic animals and cultivated crops. The suitability of potential agents can be estimated by criteria such as their infectivity and virulence for the particular host against which the attack is directed, the availability and resistance of the causal agent, its means of transmission, ease of detection and epidemicity, the availability of methods of immunization and specific treatment, and the possibility of what is called "retroactivity"; in other words, the possibility that the infection may involve not only the attacked but also the attackers. Infectious agents to which a given population has never been exposed have obvious points in their favour. Several plant diseases pass this test and are considered eminently suitable for damaging an enemy's food supply, while insects such as the Colorado beetle might well be added to the list. A detailed study of human and animal infections serves to eliminate a considerable number of pathogenic organisms on the grounds that their infectivity is low, their control comparatively simple, or the knowledge available of their methods of spread too meagre. However, some 33 bacteria and viruses remain, among them being agents transmitted by water, air, and insects. Viruses are obviously prime favourites, for at present chemotherapeutic treatment is lacking, and, apart from vaccinia, vaccines are either not available or are manufactured only in quantities quite insufficient for mass immunization. Strains of bacteria rendered resistant both to penicillin and the sulphonamides might be difficult to deal with since it would take some little time to discover that the organisms really were drug-fast. Among the virus diseases which might possibly be used are yellow fever, psittacosis, Rift Valley fever, louping ill, equine encephalomyelitis, foot-and-mouth disease, rinderpest, fowl plague, and Newcastle disease, while bacterial infections which might be employed include pneumonic plague, brucella infections, anthrax, botulism, glanders, melioidosis, and tularaemia. The causal agent of the last infection would doubtless have to be rendered resistant to streptomycin. Unfortunately these diseases do not exhaust the possibilities, for dried suspensions of rickettsiae could easily be produced in large amounts, while in the Tropics the introduction of an efficient malarial vector, such as *Anopheles gambiae*, into a country where malaria is but mildly endemic might easily give rise, as it did in Brazil, to a devastating malarial epidemic. Biting flies, such as *Stomoxys*, which can convey trypanosomes directly by their bites, might well serve to destroy cattle in large numbers by infecting them with *Trypanosoma congolense*. Special attention is directed by Rosebury and his colleagues to those viruses which have given rise to infections among laboratory workers; yellow fever, for instance, caused a large number of such infections before an efficient means of immunization was developed, for the virus can readily pass through the nasal mucosa or conjunctiva and through the apparently intact skin.

It seems doubtful whether at the moment bacterial warfare could be directed against man on a nation-wide scale, but it could well be used against particular cities or isolated strong points during the course of hostilities; and the occurrence of strange epidemics or epizootics before an outbreak of war might so disorganize a people and lower their morale that their will to resist aggression would be seriously impaired.

For bacterial warfare to be an efficient aggressive weapon far more must be known of the effective dose or concentration of different agents when sprayed from the air. Also much more knowledge would be required of the infectivity of finely divided lyophilized bacteria and viruses and of their survival after dissemination from aircraft, with and without smokes and poison gases. Similarly the capacity of spore-forming bacteria to withstand dissemination in explosive projectiles is still unknown. Answers to these and similar questions, however, could readily be obtained.

The control of bacterial warfare by international agreement is even more difficult than the control of atomic

[1] *J. Immunol.*, 1947, **56**, 7

bombs; it may, in fact, be regarded as impossible. Much, however, might be done to guard against bacterial warfare by intensifying the search for chemotherapeutic agents active against viruses and by the construction of masks which can hold back even the smallest viruses. It also seems somewhat ludicrous that most of the laboratories capable of turning out vaccines on a large scale should be situated in some of the most vulnerable areas in this far too vulnerable island. There is one ray of hope. The factors governing the epidemic spread of a particular organism are as yet but little known. To initiate an epidemic at a particular moment in a given population would be a unique experiment far less certain in its results than the explosion of a mere atomic bomb. In the past attempts to start epizootics among animals have not been very successful. Pasteur,[2] it will be remembered, produced an epizootic among rabbits with the bacillus of fowl cholera, but a more recent attempt to destroy rabbits in Australia with the virus myxomatosum, a far more specific and deadly pathogen, was completely unsuccessful.

RADIOACTIVE ISOTOPES AGAIN

The Medical Research Council has shown both wisdom and foresight in inviting Prof. Robley D. Evans, of the Massachusetts Institute of Technology, to visit this country. Several British medical physicists[3 4] were fortunate enough to share in Toronto in some of the wartime applications of the new radioactive isotopes to biological and medical research; and with Sir James Chadwick,[5] whose interests are not primarily medical, they have since done their best to convey to others some idea of the possibilities which have been opened up by these new techniques. No British physicist, however, would claim to equal either the length or variety of the combined experience of Prof. Evans and Dr. J. G. Hamilton, of the Radiation Laboratory, Berkeley, California, who accompanies him. Prof. Evans combines in rare degree the qualities of modesty and enthusiasm, and he has allowed himself to be worked as hard as the most exacting and appreciative of hosts could have desired. The most valuable results of such a visit must be personal and intangible, for, in the application of any new technique, however simple in principle, there are inevitably points of detail and procedure which can be satisfactorily communicated only by word of mouth. Such contributions cannot be readily measured or assessed, but at the conclusion of his lecture at the Royal Institution last week he received an ovation of a kind which can have been given to few others in that historic theatre.

Four points may be picked out from his address. The first is an illustration, by graphic simile, of the power of the method. If all the atoms in a tumbler of water could be labelled, as with radioactivity, and then tipped into the sea and there left to distribute themselves about the oceans, the number of atoms so marked which one might later expect to recover in any random tumblerful of sea-water from any part of the world would be 5,000. The illustration was not claimed to be original, but it brings out, as many more lengthy explanations might fail to do, why it is that such small quantities of radioactive substances will go such a long way in research. The second point, which is connected with the first, is that human subjects have little to fear from such experiments knowledgeably conducted. After seven years of research on dogs, and some 300 experiments on human beings, the safety factor is regarded as sufficiently established. Moreover, it has been algebraically expressed in a simple formula which, with knowledge of the necessary physical constants, can be applied to any particular radio-isotope. Alternatively, it may be said that an additional intensity of radiation equivalent to one-half of the normal cosmic ray intensity at sea-level, to which the body is in any case permanently exposed, is enough for research purposes.

The third point is one of method and equipment. In describing in some detail the now classic investigation of the efficacy of different preservatives of stored blood and the activity of such blood after transfusion,[5 6] which Sir James Chadwick has already made familiar in general terms, Prof. Evans must have astonished many by his account of the extent to which mechanization and standardization of procedure have been carried. In a suitably equipped laboratory it is possible to place two dozen specimens for radioactive determination on a mechanically operated turntable, to indicate on a series of punched cards the percentage accuracy to which each is to be assayed, and then leave the machine to "count" for periods suitable to each, and work out and record in permanent form the numerical answers. Two trained assistants can prepare and put through more than two hundred samples during an eight-hour day. The lesson is not one which the Medical Research Council is likely to ignore. The number and complexity of possible investigations is so great, using these new methods, and the numerical computation which may be necessary so considerable, that the saving of time of responsible investigators, and the virtual ensurance of standardized procedures, must in themselves make an important contribution to success.

Finally, Prof. Evans proceeded some little way beyond the published record in describing the results which have been obtained in the treatment of Graves's disease, first with the original "12-hours" radio-iodine, and later with the more convenient and stable "8-days" variety. Using the former, 65 cases have been treated, of which 27 have been published.[7] With the latter a further 29 have so far been treated. Results are described as uniformly encouraging, with no unfavourable results at any stage. Moreover, the hyperthyroid activity of cases showing only a transient response to thiouracil has been reduced to a normal level by radio-iodine, and so continued without subsequent relapse over considerable periods. By comparison with the results of partial thyroidectomy the return to normality is relatively slow, and biopsy has been found of value as a routine procedure. The therapeutic case for radio-iodine has clearly been strengthened by further experience; notwithstanding, with the possible exception of lymphosarcoma, that the opposite has been the case with radiophosphorus.[8] It may be recalled that some 415 artificial radio-isotopes are now known, including at least one for each of the chemical elements; and, like others whose views command respect, Prof. Evans has left no doubt that their most valuable contribution is likely to be in research.

The generous donor who endowed the Commonwealth Travelling Professorship in Medicine announced at the Royal College of Surgeons of England last November is Mr. Arthur Sims, a prominent New Zealand industrialist with commercial interests in this country. Sir Hugh Cairns, Nuffield Professor of Surgery in the University of Oxford and a member of the Council of the Royal College of Surgeons of England, has been unanimously elected the first Arthur Sims Travelling Professor.

[2] *Ann. Inst. Pasteur*, 1888, **2**, 1.
[3] Mitchell, J. S. (1946). *British Journal of Radiology*, **19**, 481.
[4] Maynecord, W. V., in preparation.
[5] *British Medical Journal*, 1947, **1**, 263.
[6] Publication in progress.
[7] Chapman and Evans (1947). *J. Amer. med. Ass.*, **131**, 86.
[8] *British Medical Journal*, 1947, **1**, 250.

INTERNATIONAL CONFERENCE OF PHYSICIANS

The opening session of an International Conference of Physicians will be held at the Royal College of Physicians of London (Pall Mall East, S.W.) on Monday, Sept. 8, at 11 a.m., and the conference will continue daily at various institutions and hospitals in London until Friday, Sept. 12. In addition to the scientific programme, outlined below, a social programme, including a Government luncheon, a banquet in the Guildhall, and a reception at the Royal College of Physicians of London, is being arranged.

The organizing secretary of the conference is Dr. G. B. Mitchell-Heggs, F.R.C.P., to whom applications for admission, which is confined to medical practitioners and is by invitation only, must be made, care of the Royal College of Physicians of London.

Scientific Programme

The conference has been arranged in eight sections, and the subjects for discussion and the names of the speakers are as follows:

SECTION OF CARDIOLOGY

President: Sir Maurice Cassidy. *Secretary:* Dr. K. Shirley Smith, 122, Harley Street, London, W.1.

Sept. 9.—Surgery of Congenital Heart Disease (with Section of Paediatrics), Dr. Helen Taussig (U.S.A.), Dr. C. Crafoord (Sweden), Dr. J. W. Brown (Britain), Dr. A. R. Gilchrist (Britain), Mr. O. S. Tubbs (Britain), Mr. T. Holmes Sellors (Britain).

Sept. 10.—Pulmonary Heart Failure (with Section of Disorders of the Chest), Dr. J. McMichael (Britain), Dr. P. H. Wood (Britain); The Clinical Value of Chest Leads, Dr. F. Wilson (U.S.A.), Dr. C. W. Bain (Britain).

Sept. 11.—The Use of Phonocardiogram in Clinical Cardiology, Dr. William Evans (Britain).

Sept. 12.—Repetitive Paroxysmal Tachycardia, Dr. J. Parkinson (Britain), Dr. C. Papp (Britain); Sympathectomy for Hypertension, Preliminary Experiences, Dr. G. Bourne (Britain); Tomography in the Study of Cardiovascular Disease, Dr. J. H. Wright (Britain), Dr. E. Tiscenco (Britain).

SECTION OF DISORDERS OF THE CHEST

President: Sir Robert Young. *Secretary:* Dr. J. G. Scadding, Brompton Hospital, London, S.W.3.

Sept. 9.—Transient Pulmonary Infiltrations, Prof. W. Loffler (Switzerland), Dr. J. L. Livingstone (Britain).

Sept. 10.—Pulmonary Heart Failure—Acute and Chronic (with Section of Cardiology), Dr. W. D. W. Brooks (Britain).

Sept. 11.—Sarcoidosis (with Section of Dermatology), Dr. C. Hoyle (Britain), Dr. C. Cameron (Britain).

Sept. 12.—B.C.G. Vaccination (with Sections of Social Medicine and Paediatrics), Dr. J. Heimbeck (Norway), Dr. W. H. Tytler (Britain).

SECTION OF DERMATOLOGY

President: Sir Archibald Gray. *Secretary:* Dr. M. Sydney Thomson, 106, Harley Street, London, W.1.

Sept. 9.—Vitamin D in the Treatment of Cutaneous Tuberculosis, Dr. J. Charpy (France), Dr. G. B. Dowling (Britain), Dr. S. Lomholt (Denmark).

Sept. 10.—Clinical Meeting.

Sept. 11.—Sarcoidosis (with Section of Disorders of the Chest), Prof. L. M. Pautrier (France), Prof. H. Haxthausen (Denmark), Dr. A. H. T. Robb-Smith (Britain), Dr. W. Freudenthal (Britain).

Sept 12.—Scabies and Pediculosis, Dr. P. G. Stock (Britain), Dr. K. Mellanby (Britain), Dr. G. H. Percival (Britain), Dr. P. A. Buxton (Britain).

SECTION OF NEUROLOGY

President: Dr. Gordon M. Holmes. *Secretary:* Dr. Macdonald Critchley, National Hospital, Queen Square, London, W.C.1.

Sept. 9.—Malnutrition of the Nervous System, Dr. W. Russell Brain (Britain), Prof. J. R. Marrack (Britain), Dr. M. A. Rugg-Gunn (Britain), Mr. T. Keith Lyle (Britain), Dr. F. E. Posthumus Meyjes (Holland).

Sept. 10.—The Role of the Pyramidal System in Movement, Dr. F. M. R. Walshe (Britain), Dr. E. G. T. Liddell (Britain), Prof. J. A. Barre (France), Dr. Ludo van Bogaert (Belgium), Prof. Mogens Fog (Denmark), Dr. P. van Gehucten (Belgium).

Sept. 11.—Spinal Fluid and Cerebral Fluid—A Comparison, Prof. M. Alajouanine (France); Altered Melody of Language (Accent) in Extrapyramidal Lesions and in Aphasia, Dr. G. H. Monrad-Krohn (Norway); Autodermography, Dr. R. Cerny (Czechoslovakia); Maternal-child Incompatibility Problem in Relation to the Nervous Sequelae of Haemolytic Disease, Prof. D. F. Cappell (Britain); Pathological Anatomy of Kernicterus, Dr. J. G. Greenfield (Britain); Operative Treatment of Myasthenia Gravis, Mr. Geoffrey Keynes (Britain); The Use of D.F.P. in Myasthenia Gravis, Dr. Andrew Wilson (Britain).

Sept. 12.—The Functions and Connexions of the Frontal Lobes (with Section of Psychiatry), Dr. W. Ritchie Russell (Britain), Prof. W. E. Le Gros Clark (Britain), Prof. K. Henner (Czechoslovakia), Dr. G. de Morsier (Switzerland).

SECTION OF PAEDIATRICS

President: Sir Leonard Parsons. *Secretary:* Dr. R. C. Lightwood, 86, Brook Street, Grosvenor Square, London, W.1.

Sept. 9.—Surgery of Congenital Heart Disease (with Section of Cardiology).

Sept. 10.—Haemolytic Anaemia, Dr. S. van Creveld (Holland), Dr. I. A. B. Cathie (Britain); Cathepsine as a Gastric Enzyme, Prof. E. Freudenberg (Switzerland); Steatorrhoea, Prof. A. C. Frazer (Britain); Amino-acids in the Feeding of Infants, Dr. Rothe Meyer (Denmark), Dr. J. M. Smellie (Britain).

Sept. 12.—B.C.G. Vaccination (with Sections of Social Medicine and Disorders of the Chest), Prof. A. Wallgren (Sweden).

SECTION OF PSYCHIATRY

President: Dr. Bernard Hart. *Secretary:* Dr. R. D. Curran, 6, Devonshire Place, London, W.1.

Sept. 9.—Genetics in Relation to Mental Deficiency, Dr. J. A. Fraser Roberts (Britain); Genetics in Relation to Mental Disorders, Dr. Eliot Slater (Britain), Dr. F. J. Kallman (U.S.A.), Prof. T. Sjogren (Sweden).

Sept. 10.—Psychodynamics of Depression, Dr. T. A. Munro (Britain), Dr. W. Clifford Scott (Britain).

Sept. 11.—Social Surveys (with Section of Social Medicine), Prof. E. Stromgren (Denmark), Dr. E. O. Lewis (Britain).

Sept. 12.—The Functions and Connexions of the Frontal Lobes (with Section of Neurology), Dr. G. Rylander (Sweden), Dr. W. Mayer-Gross (Britain).

SECTION OF SOCIAL MEDICINE

President: Sir Wilson Jameson. *Secretary:* Dr. J. A. Charles, Hillside House, Stanley, Co. Durham.

Sept. 9.—Care of the Aged and Infirm, Sir Ernest Rock Carling (Britain), Dr. A. Hojer (Sweden), Dr. J. Frandsen (Denmark).

Sept. 10.—Social Medicine in the Curriculum, Dr. Jon B. Grant (U.S.A.), Prof. J. A. Ryle (Britain), Prof. J. M. Mackintosh (Britain), Prof. Axel Strom (Norway).

Sept. 11.—Social Surveys (with Section of Psychiatry), Dr. C. P. Blacker (Britain).

Sept. 12.—B.C.G. Vaccination (with Sections of Disorders of the Chest and Paediatrics), Prof. G. S. Wilson (Britain).

SECTION OF GENERAL MEDICINE

President: Lord Moran. *Secretaries:* Prof. G. W. Pickering, Ninnings, Denham Lane, Chalfont St. Peter, Bucks; Dr. M. L. Rosenheim, University College Hospital, Gower Street, London, W.C.1.

Discussions are being arranged on the following subjects:

Sept. 8.—Penicillin.

Sept. 11.—Infective Hepatitis.

Sept. 12.—Pain.

BIRTHDAY HONOURS

The names of the following members of the medical profession were included in a Birthday Honours List published in *Supplements* to the *London Gazette* on June 12.

Privy Counsellor

The Hon. Sir GODFREY MARTIN HUGGINS, K.C.M.G., C.H., F.R.C.S. Prime Minister of Southern Rhodesia since 1934.

K.C.B. (Military Division)

Surgeon Vice-Admiral HENRY ST. CLAIR COLSON, C.B., C.B.E., M.B., B.S., R.N.

K.C.V.O.

Sir HUGH LETT, Bt., C.B.E., D.C.L., M.B., F.R.C.S. President of the British Medical Association.

Surgeon Rear-Admiral HENRY ELLIS YEO WHITE, C.V.O., O.B.E., M.D., F.R.C.S.Ed., R.N. Honorary Surgeon to the King.

Knighthood

WILLIAM NORWOOD EAST, M.D., F.R.C.P. For services to the study of criminal psychology.

DAVID KENNEDY HENDERSON, M.D., F.R.C.P., F.R.F.P.S. Professor of Psychiatry in the University of Edinburgh.

ERNEST LAURENCE KENNAWAY, M.D., D.Sc., F.R.S., F.R.C.P. Emeritus Professor of Experimental Pathology in the University of London. Lately Director of the Chester Beatty Research Institute of the Royal Cancer Hospital, London.

ALEXANDER MCCALL, M.D. For public services.

ARCHIBALD HECTOR MCINDOE, C.B.E., M.S., F.R.C.S., F.A.C.S. Civilian Consultant in Plastic Surgery to the Royal Air Force.

Colonel GEORGE REID MCROBERT, C.I.E., M.D., F.R.C.P., I.M.S. Inspector-General of Civil Hospitals, Bihar. Lately Professor of Medicine, Madras Medical College, and Physician, Madras General Hospital.

THOMAS WILLIAM MEAGHER, M.B., B.S. Lord Mayor of the City of Perth, Western Australia, 1939–45. For public services.

ROBERT ARTHUR YOUNG, C.B.E., M.D., F.R.C.P. Consulting Physician, Middlesex and Brompton Hospitals.

C.B. (Military Division)

Major-General WILLIAM FOOT, *M.C.*, M.B., B.Ch., late A.M.S. Honorary Physician to the King.

C.M.G.

JOHN MALCOLM, M.D. Emeritus Professor of Physiology in the University of Otago, New Zealand. For services to the medical profession.

Colonel PHILIP GRAHAM STOCK, C.B., C.B.E., M.B., F.R.C.P. Medical Officer, Ministry of Health.

C.I.E.

Colonel LLOYD KIRWOOD LEDGER, O.B.E., M.R.C.S., L.R.C.P., I.M.S. Inspector-General of Civil Hospitals and Director of Public Health, Central Provinces and Berar.

C.V.O.

GEOFFREY SYDNEY TODD, O.B.E., M.B., F.R.C.P. Medical Superintendent, King Edward VII Sanatorium, Midhurst, Sussex.

C.B.E. (Military Division)

Temporary Surgeon Captain ROBERT GREGORY HENDERSON, M.D., R.N.V.R.

C.B.E. (Civil Division)

GEORGE LINDOR BROWN, M.B., Ch.B., F.R.S. For services to medical research in the Royal Navy.

HENRY ANSTEY COOKSON, M.B., F.R.C.P.Ed., F.R.C.S.Ed. For public services in the County of Durham.

ERIC WILFRED FISH, M.D., D.Sc., D.D.S. Honorary Dental Surgeon, St. Mary's Hospital, London, W.

CONRAD TRELAWNEY FITZGERALD, M.D. Medical Health Officer for the Department of Public Health and Welfare, Trinity East, Newfoundland.

JAMES ANDREW GUNN, D.M., D.Sc., F.R.C.P. Chairman, British Pharmacopoeia Commission. Professor of Therapeutics in the University of Oxford and Director of the Nuffield Institute for Medical Research.

SAMUEL THOMPSON IRWIN, M.Ch.Belf., F.R.C.S.Ed. Chairman, Northern Ireland Medical War Committee.

ALDWYN BROCKWAY STOKES, B.M., B.Ch. Lately Member of National Advisory Council on the Employment of the Disabled.

KHONG KAM TAK, M.B.E., M.B., B.Ch. For public services in the Malayan Union.

O.B.E. (Military Division)

Surgeon Commander EDWARD WILLIAM BINGHAM, M.B., B.Ch., R.N.

Lieutenant-Colonel (Acting) CHARLES DAVID BRUCE, M.B., Ch.B., R.A.M.C.

Lieutenant-Colonel FREDERICK GRACE SMITH, M.B.E., E.D., Officer Commanding, Ceylon Medical Corps.

O.B.E. (Civil Division)

VERNON FITZCLARENCE ANDERSON, M.D., Colonial Medical Service. Senior Medical Officer, British Honduras.

Major HUBERT JOSEPH CURRAN, M.B., B.Ch., I.M.S. Principal, Medical School, Darbhanga, Bihar.

CATHERINE HARROWER, M.B., Ch.B. Member of the Glasgow Burgh Insurance Committee.

DAVID WINN HOODLESS, L.M.S.S.A., Colonial Medical Service. Lately Principal of the Central Medical School, Suva, Fiji.

NORMAN HOWARD-JONES, M.R.C.S., L.R.C.P. Director, Medical Department, British Council.

Lieutenant-Colonel ROBERT KELSALL, D.S.O., M.D. Chairman, High Wycombe Medical Board.

DAVID JAMES MASTERTON MACKENZIE, M.B.E., M.B., Ch.B. Director of Medical Services, Bechuanaland Protectorate.

WILFRED ERIC STANLEY MERRETT, B.M., B.Ch., Colonial Medical Service. Acting Principal of the Medical School and Lecturer in Physiology, Nigeria.

PATRICK JOHN MONAGHAN, M.B., B.S. Chief Medical Officer, Western Samoa.

Lieutenant-Colonel WILLIAM THOMAS TAYLOR, M.B., B.Ch., I.M.S. Deputy Director-General, Indian Medical Service (Stores).

Honorary O.B.E. (Civil Division)

KRIKOR SOLOMON KRIKORIAN, Senior Medical Officer, Palestine.

Miss SOO KIM LAM, L.M.S. For public services in the Malayan Union.

M.B.E. (Military Division)

Major JOHN COLSTON BABBAGE, M.B., Ch.B., R.A.M.C.

M.B.E. (Civil Division)

KRISHNALAL VITHALDAS ADALJA, M.B., B.S. For public and social welfare services in Kenya.

Captain NUGENT DAVY JEKYLL, M.B., B.Chir., I.M.S. Agency Surgeon and Medical Officer, Chitral State Scouts, North-West Frontier Province.

Captain GERALD EDWARD MCDONALD, I.A.M.C.

ROBERT SCOTT REID, M.B., Ch.B. Admiralty Surgeon and Agent.

LAURESTON HEWLEY WHARTON, M.R.C.S., L.R.C.P. Medical Superintendent, Leprosy Hospital, British Guiana.

VISIT TO CZECHOSLOVAKIA

Thirty British medical men were the guests of the Government of Czechoslovakia from May 15 until June 1 and received an enthusiastic welcome. The general impression gained was that Czechoslovakian medicine was turning to the West, and in particular to Great Britain, for help and inspiration in the task of reconstruction. The Department for Diseases of the Chest at the Bulovka Hospital, Praha, was visited. It is well equipped and has a fine *x*-ray installation. The lines on which treatment is carried out are similar to those at the best chest centres in Britain. Both at the university clinics under Prof. Charvat and Prof. Jurasek and also at the Bulovka Hospital it was encouraging to see the high standard of medicine and surgery and the enthusiasm of the young postgraduate medical personnel, a high proportion of whom spoke English. They still need more English textbooks on medicine and surgery.

There is a shortage of nurses, mainly due to the higher wages paid in industry. Their hospitals are also handicapped for accommodation, with the result that beds are too close together. Their practice of general anaesthesia is somewhat out of date, but this is realized and they are making great efforts to advance; as many postgraduate students as possible are coming to Britain. The teaching staff is rather strained at present, training undergraduates to fill a national health service.

Every spa is a first-class health resort situated in beautiful surroundings. The treatments are very little different from those given before the country was cut off from Western research, hence they are still characterized by a certain empiricism. Many of these health resorts are directly supported by the Czechoslovakian Government and are being used for the rehabilitation of workers of all classes. All the patients seen appeared to be very content. Their diet would certainly cause envy in similar institutions in Britain. Tuberculous patients were getting as much meat in one day as patients in England get in a week, and the meals were well cooked and served.

ROYAL MEDICAL BENEVOLENT FUND

The annual general meeting of the Royal Medical Benevolent Fund was held on June 5, when Sir Alfred Webb-Johnson was elected president; Dr. C. L. Batteson, Honorary Treasurer; and Mr. V. H. Riddell, Honorary Secretary. A vote of thanks was proposed from the chair, and unanimously carried, to the *British Medical Journal* for the help extended to the Fund during the past year, and especial thanks to it for the publicity afforded to the Christmas Gift Fund and to Westmoreland Lodge.

LADY TATA MEMORIAL TRUST

International Awards for Research in Blood Diseases

The trustees of the Lady Tata Memorial Fund announce that, on the recommendation of the scientific advisory committee in London, they have made the following awards for research in blood diseases, with special reference to leukaemia, in the academic year beginning Oct. 1.

Grants for research expenses and assistance.—Dr. Jörgen Bichel (Denmark), for work at Aarhus, Denmark; Dr. Pierre Cazal (France), for work at Montpellier; Dr. Pierre Dustin (Belgium), for work in Brussels; Dr. Peter A. Gorer (Great Britain), for work in London; Dr. Maurice Guérin (France), for work in Paris; Dr. Josef Japa (Poland), for work in Cracow; Dr. Edith Paterson (Great Britain), for work in Manchester; Prof. Edoardo Storti (Italy), for work at Pavia; Dr. Johannes Clemmesen (Denmark), for work in Copenhagen; Dr. Tage Kemp (Denmark), for work in Copenhagen.

Scholarships (for whole-time or part-time research).—Dr. Simon Iversen (Denmark), for work in Copenhagen; Dr. Claus Frederik Munk Plum (Denmark), for work in Copenhagen; Dr. Guido Hilmer Rafael Tötterman (Finland), for work mainly in Helsinki.

COLONIAL MEDICAL RESEARCH STUDENTSHIPS

On the recommendation of the Colonial Medical Research Committee, the Secretary of State for the Colonies has instituted ten research studentships for graduates in medicine and cognate sciences who desire by this means to prepare themselves for research work in tropical medicine and related subjects. The studentships will entitle the holders to an allowance at the rate of £260 per annum, free of income tax, and normally will be held for a period of two years, subject to satisfactory report at the end of the first year's work from the supervisor, who will be nominated by the committee. They will be awarded on the advice of the committee and will be tenable at any approved university or other appropriate institution. If a student should cease his training before the expiry of the term for which his allowance was granted he will be required to refund any money paid to him for a period subsequent to the date on which he ceased his training. Any award will be terminable at any time in the absolute discretion of the Secretary of State. Candidates should be British subjects and graduates of British universities. Students successfully completing their courses will be offered posts in the projected Colonial Medical Research Service, details of which are not yet fully worked out, but they are intended to include superannuation provisions analogous to the federated superannuation system for universities and interchangeable with it. In view of possible employment overseas later, candidates for studentships may be required to undergo medical examination. Application should be made, through the head of the candidate's department, to the Secretary, Colonial Medical Research Committee, c/o Research Department, Colonial Office, London. S.W.1, and should include, in addition to details of the candidate's academic record, some indication of the subject preferred.

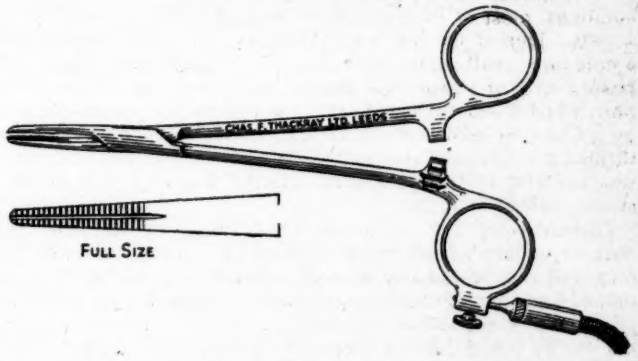
At a meeting of the directors of the Society for Relief of Widows and Orphans of Medical Men, held on April 9, with Dr. R. A. Young, president, in the chair, the deaths of one member and four widows in receipt of grants were reported. One widow had been on the funds for over 30 years and had received £2,300 in grants. A first application for relief was received from the widow of a member, and a yearly grant of £50 from the ordinary funds and £25 from the Brickwell Fund were voted to her. Dr. E. J. Blackett, secretary of the society for 42 years, tendered his resignation, which was accepted. The annual general meeting will be held on Wednesday, May 21, at 5 p.m. Relief is granted only to the widows and orphans of deceased members. Membership is open to any registered medical man who, at the time of his election, is residing within a twenty-mile radius of Charing Cross. Full particulars may be obtained from the secretary, 11, Chandos Street, Cavendish Square, W.1.

Preparations and Appliances

DIATHERMY HAEMOSTATS

Mr. WILSON HEY, F.R.C.S., Manchester Royal Infirmary, writes:

For fifteen years almost all my patients at operation have been connected to some form of diathermy apparatus with the active terminal connected to haemostats of various types. The usual type is shown in the diagram and is in three sizes, 5¼-, 7-, and 9-inch, the shortest for surface and the longest for deep work. The blades are fine-pointed because the bleeding vessels must be picked up lightly and finely so as to leave only a minute carbon mass. The central groove is for the insertion of a fine round-bodied needle which enables the instrument to be used for cutting; the smallest haemostat is not grooved. They are all of the Moynihan pattern with box joints and of stainless steel. To prevent the cable wire from



breaking at its junction with the connecting metal terminal both should be encased by a two-inch piece of rubber tubing. Attempts to cover the whole instrument except the points with some boilable insulating material have so far proved unsatisfactory. Consequently both the patient's body and the surgeon's hands must be insulated at all points liable to contact with the haemostat, which is clipped to a towel when not in use. The instrument will quickly discover punctures in the surgeon's glove although it can be held with impunity if grasped firmly by the naked hand. The importance of a close, even fitting of the inactive electrode, and of the protection of the patient from contact with all metal parts of the table should be known by every diathermy user. The current is controlled by the surgeon's foot.

Most named vessels and a few unnamed ones near the larger vessels should be ligated. The surgeon using only one haemostat throughout an operation naturally saves innumerable movements. He can in a few seconds seal a dozen or more vessels caught by his assistants. The saving of time, labour, and bleeding in many operations, such as the radical breast operation, is enormous. More perfect haemostasis is obtained in any wound, because the surgeon takes the trouble to stop every tiny oozing point which he could not, or would not, trouble to deal with by ligature. Bleeding in remote and hidden places can be more easily sealed. A radical breast amputation is done in a third less time, with less exertion, bleeding, and shock; the average number of ligatures in the radical breast operation is twelve, in a subtotal thyroidectomy six. With an efficient assistant working his own diathermy only half a dozen haemostats are necessary for any operation.

In over 1,000 prostatectomies no single ligature has been used. One result is that the catgut bill for the theatre will diminish by more than 90%. Asepsis is more certain if vessel-sealing is caused by a minute fragment of sterile carbon than by a massive ligature, whether absorbable or unabsorbable. Very little practice is required.

These instruments are made for me by Messrs. Chas. F. Thackray, Ltd., of Park Street, Leeds. They also make for me Stiles tissue forceps and Scott's long tonsillar forceps with similar connexions, but any type of haemostat can be modified for diathermy.

Correspondence

Calories

SIR,—Prof. J. R. Marrack's letter (June 7, p. 821) is a welcome contrast to what was said in "another place." A further objection to the use of global statistics is that all the "calories" legally assigned to human stomachs do not reach them by a direct route. It is even said that some hardened criminals feed their chickens on potatoes. Whether this is a mere debating point or an appreciable source of error I do not know.

One might have hoped that "calories," like foreign affairs, would have been kept out of party politics; this has not been done—with potentially serious consequences. It may not be true that Government departments pigeon-hole scientific reports the contents of which are disagreeable to departmental chiefs, but it *might* be true, and a contributor to your editorial columns quoted (April 19, p. 535)—but without indication of source—some ominous sentences. Indeed, quite apart from political emotions, most of us retain something of a child's pleasure in secrets. During the late war I sent in to an official committee a note on a small statistical matter. A few days later I extracted from a nest of sealed envelopes a numbered copy of my little note, which I was instructed to peruse and return to headquarters by a similarly romantic route. For quite 30 seconds I was so thrilled that I could almost believe that the binomial theorem was my own invention, a deadly secret weapon I was aiming at the enemy's heart.

Dietary samplings on a sufficient scale to be valuable can only be undertaken by public authorities—central or local. It may still not be too late to revive the waning public faith in official statistics of "calories." In the first place an accurate and *readable* account of the way in which the official surveys are carried out should be prepared. I have little doubt that an accurate statement is already printed in some official document, but official accounts of statistical investigations tend to be either too curt or too technical for a general reader. The best plan would be to circulate a draft to the editors of the medical and other serious weekly journals. The final product should be well advertised. Then the monthly or quarterly statistics of "calories" should be sent to all the newspapers, whether they show improvement or deterioration. No doubt political half-wits on both sides would try to make capital out of rises or falls; but Ministers and Civil Servants always underrate the intelligence of the general public—naturally enough, because both are the prey of talkative fools and mistake a biased for a random sample of the public. If Government departments are too haughty and too secretive to do this, perhaps some of the more important local authorities could take on the work.

A statistical veteran is bound to have a (rather pathetic) faith in the efficacy and popular appeal of statistics; but almost anything would be better than the partisan handling of a subject of universal interest, to which Prof. Marrack has drawn attention. I need hardly say that the faults have not been only on one side. In fact, if I had to pick out the worst and most reckless statements I—but this is to pass from statistics to politics, of which I am an even worse judge than of statistics.—I am, etc.,

MAJOR GREENWOOD.

Dried Egg and Salmonella

SIR,—In the leading article, "The Egg as Poison" (April 5, p. 456), reference is made to the isolation by Gordon and Buxton [1 2] of *Salm. typhi-murium* from ducks and *Salm. thompson* from chickens. We would point out that in addition to these two salmonella types and to *Salm. pullorum*, *Salm. gallinarum*, and *Salm. enteritidis*, the following have also been recorded[3]: *Salm. california*, *Salm. bareilly*, *Salm. montevideo*, *Salm. anatum*, and *Salm. london*. Recently, we have also isolated *Salm. bovis morbificans* from a serious outbreak of disease in chicks. There is little doubt that the presence of these latter types is associated with the importation into this country of American spray-dried egg, which is known to have been fed to poultry either directly or indirectly in canteen or camp swill. The incidence of these salmonella types in poultry is very similar to that recorded[4] in man and pigs during the same period, and an increase of over 200% in the incidence of avian salmonellosis was reported[4] during the years 1941-4.

Unlike *Salm. pullorum* these other salmonella types do not usually infect the ovary of the adult bird, and in a study of the pathogenesis of *Salm. thompson* (in press) it has been shown that the infection of egg meat generally occurs only when conditions of egg storage are suitable to allow the penetration of the organism through the egg shell. It is probable, therefore, that the danger to public health from the consumption of clean chicken eggs is almost negligible.—We are, etc.

R. F. GORDON,
A. BUXTON.

Weybridge, Surrey.

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1 *Mon. Bull. Emerg. Publ. Hlth. Lab. Serv.*, 1945, **4**, 46.
2 *J. Hyg., Camb.*, 1945, **44**, 179.
3 *Med. Res. Cncl. Rep.*, 1947, No. 260, London.
4 *Vet. J.*, 1946, **102**, 187.

Treatment of the Maladjusted Child

SIR,—I agree with the statement of Drs. Elizabeth G. W. Barker and W. Liddell Milligan in their article (June 7, p. 805) that in the treatment of a maladjusted child removal from home is sometimes essential for a time. However, I cannot feel that admission to an adult mental hospital is the correct solution for this problem. If adequate hostels are provided by local authorities in connexion with their child guidance services, only a very few children cannot be given the accommodation they need. These few are those whose behaviour is too grossly disturbed for hostel or foster-home, and they are usually psychotic or pre-psychotic cases.

But according to the paragraph indicating the sources of the children admitted to St. James's Hospital such cases only amount to 4% of their admissions. To admit other types of maladjusted children to an adult mental hospital seems to be just the state of affairs one wishes to avoid at all costs. If they could go to a special children's admission ward or villa it might not be so bad. But the article states: "Some children were treated for a time in the male or female admission wards or villas, but the majority were housed in a special wing of the female convalescent villa." Reference is made to an annexe where children "are transferred after a preliminary period of observation and, if necessary, treatment in the main hospital." This must mean the children mixing with various types of acute and chronic psychotic adults, which seems to be highly undesirable.

I would suggest that psychiatrists should stimulate local authorities to open more hostels for maladjusted children rather than open the doors of the adult mental hospital admission wards to children who, though maladjusted, do not show psychotic features. However, other mental health services would do well to follow the example of Portsmouth and make some special provision for the more seriously disturbed child who cannot be cared for in a hostel.—I am, etc.,

W. H. WHILES.

Nottingham.

SIR,—It is unfortunate that the work of seven years on "Inpatient treatment of the Maladjusted Child" should have been reported by Drs. Elizabeth G. W. Barker and W. Liddell Milligan (June 7, p. 805) in terms so vague that its evaluation is impossible. Ages, we are told, "varied between 4 and 15 years, but the majority admitted were between 7 and 11 years old, with a peak at 9 years, . . ." etc. This tells us almost nothing about the scatter. In this context, "the majority" might be anything from 51% to 98%. Period in hospital is similarly treated. The paragraph on intelligence adds little but inaccuracy to the general vagueness. The average intelligence was not unnaturally above the normal after the lower end of the distribution curve had been gratuitously eliminated. No mention is made of the test used. From the girl of 13 with an I.Q. of 170 I think one can safely infer that the test used was Cattell Scale III. It would have been less misleading if this fact had been mentioned, since I.Q.s on this test, particularly at the upper end of the scale, are not comparable with other tests. Though Cattell's scale does go up to 20 years, further than most psychologists would allow, there is certainly no justification for speaking of a mental age of *over* 20.

"There was a positive correlation between stealing with enuresis and rejection. . . ." Coefficient of mean square contingency presumably? But, since the sample was by no means large, the standard error of C could not be calculated. A 2×2 contingency table would therefore seem to have been indicated, which does not give a correlation coefficient. In any event, what about the associations stealing-rejection, stealing-enuresis, and enuresis-rejection separately? "From the foregoing account it will be seen that some 80% of the children were greatly benefited by in-patient treatment." This can only be seen from the statement that roughly 80% returned home. Without some more valid criterion of "benefit" no conclusion can be drawn.

It is quite possible that much valuable therapeutic work has been done which would warrant a vast extension of in-patient treatment of maladjusted children, but in the report of the work there is not one shred of evidence to support this conclusion.—I am, etc.,

Dumfries. G. A. FOULDS.

Health of Children Attending Day Nurseries

SIR,—Truly the fat is in the fire! Dr. Margaret E. McLaughlin's observations (May 3, p. 591, and May 10, p. 631) suggest—as some of us had already begun to suspect—that in erecting and staffing day nurseries this country has gone to a great deal of trouble and expense in order to make a great number of children less healthy. What a douche of cold water for our sentimental and well-meaning "social workers." What a further shock for that once smugly self-satisfied institution at the bottom of Whitehall! No wonder there is a protest that one investigation is not enough, that further observations must be made (with the obvious hope that the later will refute the earlier). By all means let us obtain more facts; indeed we must have the fullest investigation into the whole problem. The health of the children is a matter that concerns the whole country.

There is one aspect of the question which has hardly been considered at all: many of those who advocate day nurseries are aware of their disadvantages but believe in their necessity. Dr. Nora Johns, for example, refers to "mothers forced to work." Now who are these mothers who are "forced" to work in time of peace? There are a relatively small number who have lost their husbands, but in my experience of twenty-seven years of general practice the great majority of these women are (*a*) masculine, (*b*) irresponsible. A masculine woman is not typically an Eton-cropped female with a masculine figure and hair on her face (this is an extreme example), but she has certain well-defined characteristics: menstruation begins late and is painful; she marries late and suffers from dyspareunia or frigidity; in pregnancy vomiting is troublesome; labour is difficult, and she does not breast-feed her baby; she has one or at most two children. On the other hand she does well at business, gets on well with the men—as a man would—and earns a good salary. She dislikes housework but likes going out to business. In short she does well at men's jobs, badly at women's. Now this type of woman frequently marries a man who from ill-health or laziness or both does not earn a good wage; hence she is "forced" to go out to work (which in fact is exactly what she wants to do).

She is also irresponsible, for, having brought a child into the world, she escapes the responsibility for a large part of its early upbringing, and incidentally passes it on to the care of other women who have no children of their own but take a hand in bringing up other peoples'. So if anything goes wrong the mother blames the nursery, and the nursery blames the mother.

Are we, Sir, being fair to the children?—I am, etc.,

London, S.W.18. F. GRAY.

Penicillin for Osteomyelitis in Childhood

SIR,—Reading the paper by Messrs. T. Twistington Higgins and Denis Browne and Dr. Martin Bodian (May 31, p. 757) on the treatment of acute osteomyelitis with penicillin based on three cases from Great Ormond Street Hospital we have got the impression that the administration of small doses of penicillin (1,000 units per lb. (454 g.) per 24 hours), the aspiration of pus without further surgery, and early mobilization form the method of treatment which the authors recommend for all cases of acute osteomyelitis in childhood irrespective of gravity or age. As we think that others may also have got this impression we should like to advance a word of caution for the benefit of those without much experience in the use of penicillin in this disease.

We have ourselves only treated cases from an older age group than those on which the experience of Higgins *et al.* is based, and our remarks must therefore be understood as referring primarily to these. Fifty-four out of our 55 cases have been over two years of age (five were adults), whereas 16 out of the Great Ormond Street series of 31 cases were under two years. Green and Shannon pointed out from a series of 95 cases under two years, in 1936, the difference in the pathology and the reduced severity of the disease in infants, and to this difference may probably be attributed some of the discrepancies between our experience and theirs. Further, the cases from Great Ormond Street appear to have been less severe than ours; 50% of our cases and only 7% of theirs had positive blood cultures, and it is especially the severely ill cases which we find do not respond to the treatment recommended. We differ on three main points: type of surgery, dosage of penicillin, and immobilization.

Type of Surgery.—In our hands aspiration has proved an unsatisfactory method of removing pus, and we have studied the table attached to the paper with great care for an explanation of the discrepancies between their experience and ours, but we confess that the more we study the table the less we understand the text. These authors write: "Where our treatment differed from that generally followed was in 13 cases in which pus formed outside the infected bone," and that "surgery was confined to aspiration of pus." But when we read the table we find that 17 cases had some form of surgical treatment and that of these five had open surgery. "Abscess incised" occurs three times, "bone drilled" once, and "sequestrectomy" once. The drilled case had apparently already had nine aspirations. Thus only twelve of the 17 cases needing surgery were treated with aspiration alone; but, of these, four had a septic arthritis when treatment was started, and the data given suggest rather a primary suppurative arthritis complicated by osteomyelitis—none had a *Staph. aureus* infection—and we fail to see why they were not grouped with others of primary suppurative arthritis which are dealt with separately in the paper. Two further cases with one aspiration only had negative local cultures, and presumably no pus was obtained.

Thus we are left with only six cases of acute osteomyelitis with pus formation treated by aspiration alone. None of these cases had a positive blood culture and they were therefore probably of the mild type. One case had acute osteomyelitis of the maxilla; his result was good, but so it was in the two maxillary cases treated by open surgery. Two cases had osteomyelitis of the fibula and now have normal radiographs; three tibias complete the story, but they have had considerable bone damage—one after 11 aspirations—and if one includes the tibia which had nine aspirations and then drilling of the bone the efficiency of aspiration for the removal of pus is hardly convincing in this series. If the cases with joint involvement must be included, the picture is even less gratifying. One shows delay of epiphysial development, another ankylosis, and another no evidence of ossification in the heads of the femur and humerus. These cases may now have normal function, but with abnormal epiphyses their future is by no means bright.

In our experience we cannot satisfactorily remove pus by aspiration, and have repeatedly proved this by aspirating on the operating table immediately before incision as much pus as we could from the soft tissues. Invariably we have found on incision considerable quantities of pus left in the soft tissues, sometimes two or three times the amount aspirated, apart from the pus within the bone, which is of course never tapped by aspiration. There may be some fault in our technique, but when we read that six, seven, nine, eleven aspirations have been performed by these authors, we are tempted to think that it is not our technique but the inherent limitations of aspiration which are to blame. We know that in the presence of appropriate blood levels of penicillin, and after adequate removal of pus and of any dead tissue by open surgery and drilling of the bone to reduce the danger of its necrosis by pressure, new pus does not form, and for this reason we have advocated primary suture in all cases, thus overcoming the reasonable objection offered by these writers to incision—that of secondary infection of an "open wound." If full sterile precautions, as used for clean bone operations, are observed at operation and the part is afterwards adequately immobilized, secondary infection does not occur.

Penicillin dosage.—Again we repeat that we have almost no experience in infants, but in older patients we have been forced to adopt a bigger dose for two reasons: first, because one must allow for organisms of greater resistance than the standard Oxford staphylococcus, until the laboratory report on sensitivity is obtained; and secondly because the bigger dose causes a more rapid control of the septicaemia and consequently of the toxaemia, whose continuation

may have serious or even fatal results in severe cases of the disease. Higgins *et al.* mention that the blood culture remains positive "from four to seven days," which we regard as far too long. We have not ourselves tested many cases for repeated positive blood cultures, because of the rapid improvement in their clinical condition, but in those cases which we have tested the second culture has been sterile except in one case which had a penicillin-resistant infection for which we had at the time insufficient penicillin. We advocate an arbitrary daily dose of 400,000 units (equal to the whole course advocated by Higgins *et al.* for many of their cases), falling to a minimum of 200,000 units daily given by intramuscular drip, for patients of all ages. If infants are unsuitable for drip administration we should give this dose by two-hourly injections during the acute stage in order to be certain of a constant bacteriostatic level of penicillin in the blood.

Buchanan, in a paper on dosage of penicillin in infants, for infections generally advocates a routine dosage of four times that used by Higgins *et al.*, given three- and not four-hourly (4,000 units per lb. per 24 hours by three-hourly injections). She found that 1,000 units per lb. per 24 hours was often insufficient for obtaining inhibition with serum dilution 1/1 ; that 2,000 units per lb. was sufficient, but that 4,000 units per lb. gave better-maintained results. We read in the paper by Higgins *et al.* that one child with a streptococcal infection of 12 times the normal resistance to penicillin made "a complete recovery on the standard dosage of penicillin," and that makes us wonder how much has penicillin really affected this series. But on referring to the table we see that "complete recovery" includes "erosion of the head of the humerus, now delay in epiphysial development." And it may be that some of the local recoveries do not differ as they should from those which would have been seen in pre-penicillin days.

Immobilization.—We read in the paper that "immobilization was not prolonged much beyond the period of penicillin treatment, and movement was encouraged as soon as it was painless *even in cases with marked radiological changes.*" (The italics are ours.) We should have been afraid that such a policy might have produced sooner or later a pathological fracture, a fact which is substantiated by these authors' experience, for in the table—again without comment in the text—we find "fracture" in a case of osteomyelitis of the tibia. Before allowing movement and weight-bearing we do carefully consider both the clinical and laboratory findings for evidence of residual inflammation on the one hand and the radiograph for soundness of the bone on the other, and we tend to conservatism if there is any doubt. Only such careful consideration can prevent unnecessary complications such as pathological fracture.

We are very sorry to be forced to stress our points of disagreement with the views of Higgins *et al.*, especially as they offer us one of the largest series of acute osteomyelitis in infants treated with penicillin which has so far been published, and the authors' conclusion on cases in this group can be discussed by few with comparable experience.—We are, etc.,

J. TRUETA.
M. AGERHOLM.

Oxford.

SIR,—We have read with great interest the report by Mr. T. Twistington Higgins, Mr. Denis Browne, and Dr. Martin Bodian (May 31, p. 757) on the treatment of osteomyelitis with penicillin. Our own experience in one surgical unit at the Royal Hospital for Sick Children, Glasgow, confirms many of their findings, and our preliminary report is awaiting publication. We find comparison with other reports difficult, as the virulence of the disease varies in different localities and there are no fixed criteria of diagnosis nor standards of "cure." It would seem desirable, for example, to classify separately infants under 1 year old. In this age group the clinical picture is not strictly comparable with acute staphylococcal osteitis in older children.

The report on blood cultures is confusing. It would appear that only two positive staphylococcal cultures were found. In our own series positive cultures of coagulase-positive staphylococci were found in 20 of the last 36 cases of acute osteitis. During this period we treated 18 cases of subacute staphylococcal osteitis. Infections of the skull, facial, and small bones tend particularly to be subacute in type. We find it difficult to concur in the view that "the abortive action of penicillin is so great that a diagnosis made on purely clinical grounds may never be confirmed in any other way." Staphylococcal soft-tissue abscesses are common in children, and in the absence of radiological evidence of bone involvement we prefer to exclude unconfirmed cases from our series, even in the presence of a positive blood culture.

As regards dosage, we have been unable to maintain a therapeutic blood level of penicillin using 1,000 units per lb. (0.45 kg.) body weight ; nor have we been able to maintain an adequate level for 4 hours with individual doses of less than 20,000 units, irrespective of age and body weight. Routine marrow punctures are performed in all our cases, and penicillin-sensitive staphylococci have on occasion been grown from the marrow until the 35th day of parenteral administration. Surely penicillin must be given until the marrow cavity is sterile? It is difficult to see how this can be achieved by parenteral administration in the case in which the blood supply to the affected area of bone has been cut off. We agree wholeheartedly about the danger of secondary infection, but consider that there is still a place for evacuation of pus by incision followed by primary suture.—We are, etc.,

MATTHEW WHITE.
WALLACE M. DENNISON.

Glasgow.

Primary Malaria in London Children

SIR,—Many readers will have been interested in the report by Drs. C. Blaxland Levick and M. E. MacGregor (May 31, p. 764) on primary malaria in London children. In view of the fact that inoculation malaria, produced either by means of a blood transfusion from a donor with latent malaria or of an injection by a dirty hypodermic syringe, is the commonest form of primary malaria in a person living in a town in a non-malarious country, it is surprising that no definite statements excluding these possibilities were made. In neither case do the histories suggest that this was a possible explanation, and as there was more than one relapse in the first case it seems most unlikely that this was a case of trophozoite-induced malaria, yet negative statements would have added to the scientific value of the paper. Perhaps these could now be made.—I am, etc.,

L. EVERARD NAPIER.

London, W.1.

Oxygen Poisoning in Man

SIR,—Dr. Kenneth W. Donald's article on oxygen poisoning (May 17, p. 667, and May 24, p. 712) is remarkable for the record number of human experiments done on volunteers and the proof that no ill results from convulsions produced by oxygen poisoning. He does not, however, make clear that the research was carried out in the experimental department and with plant and appliances (only three units of which are figured in the articles) which Sir Robert Davis had the prescience and enterprise to set up at great cost at Messrs. Siebe, Gorman and Co.'s works during the many years of research carried out by him under deep diving, high altitude, and poison gas conditions, in which I have assisted, and lent by him for the use of the Admiralty voluntarily and free of charge for the duration of the recent war. Dr. Donald thanks Sir Robert for help and advice, while grateful acknowledgment is given to others. It should have been recorded that the whole research was made possible by the loan of Sir Robert's experimental department and the information on past experiments and facilities afforded him at Messrs. Siebe, Gorman and Co.'s works, including offices, sick bay, etc.

Dr. Donald is entirely wrong in attributing to the late Prof. J. S. Haldane work done in conjunction with the Admiralty Deep Diving Committee of 1930-3, of which I was the physiological member. Sir Robert Davis, at his expense and with the help of Capt. Damant, by extensive researches on animals extended the diving decompression tables set up by J. S. Haldane for depths up to 210 feet (64 m.). The experiments showed that, while the Haldane tables were satisfactory up to 210 feet, they were not satisfactory beyond the depth, and new factors had to be taken into account to make the tables of decompression safe for 300 feet (91.4 m.) and over reached at the trials in Loch Fyne. To prevent any excess of CO_2 in the breathing circuit, Siebe, Gorman and Co. contrived the addition of an injector apparatus (and CO_2 absorbent chamber). This invention and the new tables proved most satisfactory, and the latter were adopted by the Admiralty and have been used successfully ever since.

The danger of breathing pure oxygen at depths beyond a certain pressure have been known to, and avoided by, Sir Robert Davis for many years. In 1929 he submitted to the Admiralty for trial a self-contained diving apparatus in which a mixture of 50% oxygen and 50% air was used at depths to about 70 ft. (21 m.). Trials by H.M.S. *Cairo* in the Mediterranean proved this apparatus to be "highly efficient and satisfactory," but owing to a financial

retrenchment policy at that time its use was not extended to smaller vessels as proposed. It was, however, supplied and used by foreign countries with quite satisfactory results and at greater depths when using suitable mixtures of oxygen and air. Apparatus on the same principle was used extensively in the last war for midget submarines, human torpedoes, shallow water diving apparatus for removing mines, suits with frog-feet (a very old invention), etc. The midget submarine successfully used against the *Tirpitz* was built with an emergence chamber, as designed and patented by Sir Robert Davis early in 1915, the diver using it being equipped with self-contained diving apparatus enabling him to leave the vessel, place an explosive charge, and to return thereto. At the time, however, it was thought that such small vessels could not be usefully employed.

In the submersible decompression chamber invented by Sir Robert oxygen is breathed by the diver during decompression from 60 ft. (18.3 m.) to the surface to shorten the decompression time. No oxygen poisoning symptoms have resulted during the many times of its use. Dr. Donald's results show that shallower depths are not always safe. The mixture of oxygen and air should, therefore, always be used as recommended by Sir Robert Davis.

The greater risk of oxygen poisoning found by Dr. Donald in under-water experiments cannot, he says, be attributed to CO_2 accumulation, which, as shown by me, enhances oxygen poisoning. He found no excess of CO_2 in the breathing chamber, but has left out of account the dead space of the mouthpiece and respiratory air-tubes. An experienced diver told me he believed the effect was due to rapid shallow breathing by less experienced and stable men when under water. Such breathing would greatly enhance the effect of the CO_2 in the dead space.

Argyll Campbell showed that oxygen breathing interferes with the transport of CO_2 from the tissues and puts up its tissue partial pressure greatly. Similarly Bean, J. W. (*Physiol. Rev.*, 1945, **25**, 1), has pointed out that nitrogen, and still more the heavier gas argon, at high pressures interferes with the diffusion outwards of CO_2 from the lungs. Helium and hydrogen, owing to their light weight, have in comparison no such effect, and have no narcotic effect when used with oxygen for deep diving. CO_2 may then be the cause both of oxygen poisoning symptoms and the anaesthetic effect of nitrogen in deep dives. This last question can be settled by measuring the partial pressure of CO_2 in the tissues when breathing argon and oxygen. The heavier gases krypton and xenon have much greater effect, but are very difficult to obtain (Lawrence, J. H., *et al.*, *J. Physiol*, 1946, **105**, 197). So soon as enough argon can be obtained a trial will be made.

I may add that a copy of Dr. Donald's report to the Admiralty was shown to me a year or two ago, and I then pointed out the claims of Sir Robert Davis for adequate recognition, but no notice of these has been taken.—I am, etc.,

Chalfont St. Peter, Bucks. LEONARD HILL.

Refrigeration Anaesthesia

SIR,—In his interesting article on the results of refrigeration analgesia in Melbourne Mr. E. S. R. Hughes (May 31, p. 761) seems to have reached much the same conclusions as British anaesthetists. At the same time there is one point which should, I think, be clarified. Mr. Hughes does not regard a tourniquet or its equivalent as of much importance—for example, "the tourniquet is not an essential requirement at any stage of the procedure and may be dispensed with altogether." With all deference may I suggest that the proper application of a tourniquet is an essential and indeed a vital part of the technique?

If a limb of an aged and toxic patient is cooled down to 5° C. without a tourniquet, the process takes a long time and is accompanied by a pronounced fall in the general body temperature. This is a most dangerous condition and is frequently followed by gradual deterioration and eventual heart failure, often associated with anuria and a low-grade bronchopneumonia. It will be noticed that in Mr. Hughes's series of 25 amputations under refrigeration the total mortality rate was 44%, while 20% of cases developed a fatal bronchopneumonia. These figures seem high, and it would be interesting to know how many of the fatal cases were refrigerated without a tourniquet. The latter device can be applied painlessly if a sausage-shaped ice bag is applied at the appropriate level round the limb for 30 minutes beforehand. The time for subsequent refrigeration can then be reduced to 1½ to 2 hours. In our experience it is better to avoid post-operative refrigeration of the stump in spite of some theoretical advantages.

It may be argued by those who dislike tourniquets that therapeutic limb cooling is often carried out without them in cases of defective circulation in order to lower the tissue metabolic rate to a point at which the limited blood flow is adequate. This is true, but the necessary temperature drop is not great, and such patients are usually younger and fitter than those undergoing amputation for gangrene.—I am, etc.,

St. Albans. C. LANGTON HEWER.

Basal-cell Carcinoma at Site of Trauma

SIR,—Trauma rarely figures in the aetiology of basal-cell carcinoma. The following case is similar to that recently recorded by Reah (1947).

CASE REPORT

Male, aged 38, brunet, normal skin texture. In 1943, recaptured after some months at liberty in Germany after escape from prison camp, he was beaten about the head and face with a revolver butt. Lacerations were produced on the forehead, cheek, and nose, and were sutured shortly afterwards, stitches being removed after about a week. All the wounds healed normally except for one gash on the forehead over the outer end of the left eyebrow.

This lesion never healed completely, and it discharged a little pus until early in 1947, when it dried up. There had been a very slow peripheral spread during the whole time. When first seen in March, 1947, the lesion was a typical superficial cicatrizing basal-cell carcinoma, 3/4 in. by 1/2 in. (1.9 cm. by 1.25 cm.), with central scarring and elevated pearly edge. The diagnosis was confirmed by biopsy.

—I am, etc.,

London, S.W.1. JAMES MARSHALL.

REFERENCE

Reah, T. G. (1947). *British Medical Journal*, 1, 412.

Pethidine in Labour

SIR,—I would like to comment on that masterly paper by Miss Josephine Barnes (April 5, p. 437) on the use of pethidine in labour. I must say that I have not been so favourably impressed by the results following the use of this drug. I agree with your correspondent, Dr. James Ross (May 24, p. 738), when he says that "its action is unreliable." That has been my own experience.

I cannot agree with Miss Barnes that pethidine satisfies the first part of her No. 1 criterion. In my experience—a much smaller one than that of Miss Barnes—an alarming, sudden, and anxious drop in blood pressure has immediately followed the administration of the drug in several cases. As regards the effect of pethidine on the baby, I have almost always found the infant slow to breathe and giving definite cause for worry, even in cases where such could not be attributed to operative interference or abnormality of any kind. Like Dr. Ross I believe heroin (diamorphine hydrochloride) to be a vastly safer and more reliable drug, and I have discarded pethidine altogether.—I am, etc.,

Belfast. J. H. P. GIFF.

Behcet's Syndrome

SIR,—Dr. E. W. Prosser Thomas's article on Behcet's syndrome (Jan. 4, p. 14) has just come to my notice, and I think it will be of interest to express our views on the so-called syndrome as well as on thrombophlebitis. In the *Proceedings* of the Medical Society of Athens (1930, p. 586) Dr. B. Adamantiades presented the first known case of recurrent iritis with hypopyon, insisting at the same time on the small ulcerations of the mouth and genitalia. All these three elements were characterized by recurrences, appearing either at the same time or at independent periods. Later (*Annales d'Oculistique*, 1931, **168**, 271) followed the same description of this syndrome in French. In 1931 Dr. Daskalopoulos (*Proceedings* of the Greek Medical Society, Athens, p. 717) describes a record case. There follows the description of Whitwell (1934); and later again in 1937 Behcet, of Constantinople, describes the syndrome in the *Dermatologische Wochenschrift* (**105**, 1152), in German.

The same author (Dr. Adamantiades), in a careful study of two other cases which came under his notice, found that a fourth element is quite common and describes in detail the thrombophlebitis either of the central vein of the retina or of the legs (Greek Ophthalmic Society, June 7, 1945, and *Annales d'Oculistique*, 1946, **179**, 143). This element was also observed by Urbanek, J. (*Zt. f. Augenh.*, 1929, **69**, 174),

Blobner, F. (*Zt. f. Augenh.*, 1937, **91**, 129), Delord, E. (*Annales d'Oculistique*, 1941, **177**, 366), and Tebeyan and Kalfayan (*Annales d'Oculistique*, 1945, **178**, 335), either on the legs or in the retina. We are pleased to see that this thrombophlebitis was also observed by Dr. Prosser Thomas.

Dr. Adamantiades describes this syndrome as the complex syndrome of recurrent iritis with hypopyon, which according to the rules of nomenclature is the name and term accepted by Greek medical literature. May we add that this syndrome is compared to the disease known as "periodic ophthalmia ('moon-blindness') of horses" according to the same author. I should like to add that Dr. Thomas's contribution to the subject is much welcomed in Greek medical circles in Athens.—I am, etc.,

Athens. NIKOS LORANDOS.

Vaginal Operations

SIR,—May I be allowed to reply to Dr. T. F. Redman's letter (May 31, p. 784), in which he criticizes my statement: "carcinoma of the vaginal portion of the cervix only occurs in women who have been pregnant." Perhaps I did not make myself clear enough in that, in this statement, I referred only to that type of carcinoma which arises from epithelium similar to that which lines the vagina—namely, squamous-celled carcinoma. I quite agree that columnar-celled carcinoma occurs quite frequently in the cervical canal in nulliparous women. This type of carcinoma, although occurring in the vaginal portion of the cervix if this be judged on a strict anatomical basis, should, I think, be considered on a pathological basis—namely, as a continuation of the uterine cavity, although of course the type of columnar-celled carcinoma is modified in the endocervical portion of the uterus.

I have investigated the 108 Mayo Clinic cases of stump carcinomata referred to by Dr. Redman, and a considerable proportion of these would seem to be cases of columnar-celled carcinoma, and the incidence of these cases would not be affected by previous pregnancy. Again, in this series I cannot find any reference to the question of a previous abortion. This point I consider important, since I should like to make it clear that when I mentioned pregnancy I also included those cases with a previous history of abortion. The table of Dr. Hurdon in which she compares the incidence of carcinoma in single and in married women is of little value, since pregnancy and abortion are not confined entirely to married women.

My original statement was based upon the teaching of Mr. T. G. Stevens, and in my five years as his registrar I had ample opportunity to confirm the aetiological relationship which occurs between the incidence of squamous-celled carcinoma of the cervix and pregnancy or abortion. Naturally I am aware that this type of investigation must of necessity be unsatisfactory, since one has to rely entirely upon the truthfulness of one's patient. If, however, Dr. Redman is prepared to concede that squamous-celled carcinoma of the cervix occurs more frequently in women who have been pregnant than in those who have not been pregnant, then my original object, which was to strongly support Mr. Wilfred Shaw in his advocacy of vaginal hysterectomy in certain types of prolapse, will have been attained.—I am, etc.,

Southport. JOHN H. HANNAN.

Printed Clinical Lectures

SIR,—I read with considerable interest Prof. L. J. Witts's review (May 3, p. 602) and Dr. Edwin Bramwell's letter (May 24, p. 741) on this subject, and would like to support Dr. Bramwell. I feel there is a distinct place in academic medicine for the clinical lecture from the verbal and written point of view. A lecture centred round a patient is invested with a definite personal touch, and the subsequent committing of it to print may be of benefit to those who were unable to be present. I have derived much pleasure and profit in reading over my notebook of notes taken while a clinical student. These represent a very fascinating medical and surgical anthology in diverse topics of fundamental clinical importance.

Doctors feel that to-day there is a certain deterioration in the art of lecturing, and it should be the rule that only those members of an academic staff of a hospital should lecture who are gifted in that manner. A man may be a born clinician but not necessarily a teacher as well. It is inspiring to pick up a volume of clinical lectures by such a giant as Sir James Paget, who, we are told, would rehearse his lectures walking up and down in the open air, to realize the profundity of clinical as well as classical knowledge that he possessed. An apt literary quotation may do much to tone up a discourse on a dull topic, although, well taught, medicine never should be dull. As a student at Bart's I recall many an issue of the hospital journal contained a printed clinical lecture delivered by one of the chiefs of the hospital. I was always grateful to the editor for printing it and so making it available to a far wider audience.—I am, etc.,

Sutton, Surrey. J. B. GURNEY SMITH.

General Knowledge and General Practice

SIR,—The subject of medical education is one of perpetual joy for committees and correspondents. Representatives of all branches of medical science—the paediatricians, the physiologists, the psychiatrists, the protagonists of social medicine, and the others—continually advocate extending the curriculum (with especial regard to their own subject) so as to make the student a more capable medical practitioner. Neither they nor anyone else seem to consider making the student a better citizen, humanist, or scientist. While they stress the technique of the profession they forget the "broad cultural background."

This letter is a plea for recognition that a "duly qualified medical practitioner" able to treat disease is not necessarily a "doctor" fully competent to take an active part in public life and enlightened circles. For that he needs a fair amount of extra-curricular non-medical knowledge. He must know not only the divisions of the peroneal artery but also the divisions of the Liberal Party, not only the development of the normoblast but also the development of uranium 235, not only the difference between Arnold Pick's disease and Friedel Pick's disease but also the difference beween George Moore and Henry Moore.

Since matriculation many of us have had no formal contact with politics and the humanities, economics, and the arts, and only the most far-sighted of our teachers bothered to remind us of their existence. The London medical schools (in particular) seem nowadays almost to be technical colleges for the study of anatomy, cardiology, and all the other "subjects." Perhaps it is still possible for an enlightened dean to sponsor a series of lectures on the economics of foreign policy, or a courageous university to introduce into the third M.B. a question on existentialism. It is the examining bodies who, by not insisting on a reasonable standard of general knowledge, allow some number of medical practitioners to be merely "clinical technicians." To raise this standard it is up to these bodies to include a compulsory general paper in the final examination. The practice in many countries abroad (with what results I do not know) of having medical students take an arts degree first is, I believe, considered impractical here for reasons of time, expense, and shortage of doctors.—I am, etc.,

London, N.W.4. D. N. BARON.

Remuneration in N.H.S.

SIR,—It may take many months for a doctor's capitation list of new Health Service insured persons to approximate in numbers to his present adult private patients. There will therefore be a considerable time-lag during which every general practitioner entering the new Service will find his income depleted, yet he will be working harder than ever with so many potential patients awaiting his "free" services—patients who do not appear on his list and for whom he will receive no payment until they do so appear—usually when they are in need of treatment, which may be months or even years after the appointed day.

I write to point out that steps should be taken now to ensure that future insurable persons will in fact apply for inclusion on the list of the doctor of their own choice on the given day, not only by arranging for publicity in the daily Press but by the distribution of application forms to post offices, insurance agencies, and doctors, and that some penalty might be devised for those who do not join within three months—for instance,

that for every month delayed beyond three months a patient should pay private fees for one month before qualifying for free treatment.

The establishing of a central pool into which bulk payment is made by the Ministry for all persons insured and from which payments would be made to doctors according to the numbers on their lists is not good enough, as practices now mainly private ones would inevitably suffer at the expense of those with full or preponderating panel lists.—I am, etc.,

Birmingham. W. W. NEWTON.

Shortage of Nurses

SIR,—I am grateful to "Surgeon Commander, R.N." (May 24, p. 740) for so ably expressing the official opinion on the training of medical orderlies. I suggest that this attitude has done, and is doing, a great deal of harm to the prospects of ex-orderlies. The Service authorities consider that a Service-trained medical orderly should receive full civilian recognition. The General Nursing Council, not unnaturally, is unwilling to grant such recognition until Service nursing examinations are made to conform to certain standards. Neither party will budge, and the result is a deplorable impasse with the unfortunate orderly as the main sufferer.

Those in the Services who are interested in the welfare of orderlies would gain more by co-operation than by this obstinate "good enough for Nelson" attitude. I entirely agree that many ex-orderlies are experienced nurses suitable for immediate inclusion in the *Register*. My only concern is that future orderlies should receive a training—and a diploma—that will place their status beyond question.—I am, etc.,

London, N.W.1. R. HOWELL ROBERTS.

SIR,—With reference to the letter of "Surgeon Commander, R.N." (May 24, p. 740) on shortage of nurses, I feel he is an old friend of State Registered nurses and therefore deserves an answer from one of them. I have met him occasionally during my 6½ years in the Q.A.R.N.N.S.R. He walks into a ward, gives his orders to the first V.A.D. or orderly he meets, and when to his pained astonishment these orders are not carried out, who does he blame? *Not* the V.A.D., *not* the orderly: no, the sister in charge, who did not receive the order, is held responsible. The Commander has forgotten that she has probably spent 5 years in training and so is the obvious person to receive his orders and see that they are carried out. He may not know that from 1939 onwards all V.A.D.s were urged to leave their organization and train as S.R.N.s—an opportunity which was availed of by many, in fact *all* who were genuinely interested in nursing.

Surely "Surgeon Commander, R.N." would be among the first to condemn a quack in his own profession: I do not hesitate to condemn them in mine. As a wartime measure the services of V.A.D.s were much appreciated, but to suggest that they should be granted State Registration on demobilization (even with recommendations by Service medical authorities) is to revert to the days of the Crimea. But perhaps this is pleasing to the Commander, whose ideas are purely retrogressive; he would then have the opportunity of becoming a second Florence Nightingale.

The following facts may be of interest: (1) All sisters that I met in the Navy were agreed that they were unable to allow even the simplest dressing to be done by V.A.D.s, whose technique, unless under close supervision, was "fingers instead of forceps." If the Commander is willing to sacrifice asepsis for speed in his zeal to dismount the G.N.C. from its "high horse," then may it not be my lot to fall into his hands or into those of his staff. (2) My sister, an M.O. in the R.A.M.C., while convalescing from typhoid fever, assisted the sister of her ward by charting the temperatures from the 4-hourly book. Her own temperature was carefully recorded each night by the night V.A.D. as anything varying from 98.4° F. (36.9° C.) to 100.8° F. (38.2° C.), despite the fact that neither the V.A.D. nor the thermometer had made any appearance during the night. To such people does "Surgeon Commander, R.N." entrust the care of the sick. He must remember that "a little learning is a dangerous thing."—I am, etc.,

Goleen, Co. Cork. EX-Q.A.R.N.N.S.R.

SIR,—The full effect of the "Mowbray" scales for male and female domestic workers became known after the memorandum (June 7, p. 819) on this subject was written. The financial position of nurses in relation to that of resident ward maids and ward orderlies in London hospitals is now seen to be even more anomalous than was stated in the memorandum. It appears that a nurse who becomes State registered in general or fever nursing and remains in hospital as a staff nurse without securing a position as ward sister must now work for twelve years before she attains to the remuneration of a ward maid and for twenty years before her remuneration, then at its maximum, becomes equal to that of a ward orderly. This statement takes account of the average additional earnings of a ward maid and orderly for Sunday duty and the higher maintenance allowance paid to them during absence on sick or annual leave. During all these years the nurse has to put up with the inconvenience of regular turns of night duty without extra pay, and in some hospitals at present has to work longer hours than the maids and orderlies.—I am, etc.,

London, S.E.13. H. STANLEY BANKS.

Calculation of the Colour Index

SIR,—The publication by Dr. R. Elsdon-Dew of yet another way of calculating the colour index (May 24, p. 723) would seem to justify one more plea for discarding a conception which has outlived its usefulness.

For the estimation of the colour index the haemoglobin value is usually given in per cent instead of in its absolute figure as is usual for every other blood constituent. The former way is particularly undesirable, as the values refer to a single standard of alleged normality (100%) irrespective of normal variations in haemoglobin content and of differences between age groups and sexes. Continuing the use of the colour index would also mean perpetuating the misconception of "hyperchromic" anaemias. Although it has been recognized long ago that an increased colour index is invariably a function of an increased cell volume (e.g., Naegeli, O., *Blutkrankheiten und Blutdiagnostik*, Berlin, 1931, p. 108), such an index is commonly misinterpreted to mean a pathologically high haemoglobin concentration. Such fallacies will soon die out when blood findings are reported in terms of red blood corpuscles (per c.mm.), haemoglobin (g./100 ml.), mean corpuscular volume (cμ), and mean corpuscular haemoglobin concentration (%); a nomogram for finding the latter values and that for mean corpuscular haemoglobin (γγ) is given in M. W. Wintrobe's *Clinical Hematology*, Philadelphia, 1946, where also the subject of this letter is discussed at length.

As a matter of archaeological rather than practical interest, the Norwegian physician S. Laache, who introduced the conception of the colour index (*Die Anämie*, Christiania, 1883, p. 110), later believed it to depend on differences in degree rather than in quality of anaemic conditions (letter to M. Regnault, quoted in the latter's *Anémie Pernicieuse et Cancer Latent de l'Estomac*, Thèse de Lyon, 1904/5, No. 117)—an unusual case of an author denying for a wrong reason the value of his own discovery.—I am, etc.,

London, E.2. HERBERT LEVY.

Another Name

SIR,—I am no psychiatrist and cannot therefore venture an opinion on the necessity for the latest proposed addition to the medical dictionary, but as one who still prides himself on the preservation of a smattering of the classics may I deplore Dr. D. Cappon's choice (May 31, p. 784) of a possible term? I fail to see any parallel between "anosognosia"—a legitimately derived Greek word meaning "no-disease-appreciation"—and "abmengnosia," a most illegitimate Graeco-Roman hybrid which seems to mean, if anything, "away-from-the-curtailed-mind-knowledge"—a possible symptom of existentialism.

This Shakespearian attitude to the classics does more credit to Dr. Cappon's intentions than to his achievement. Averse as I am from the multiplication of nomenclature, I hesitate to coin a new term myself and would prefer anyway to await the efforts of more experienced classical scholars. Perhaps Dr. J. N. Fell would oblige.—I am, etc.,

London, S.W.6. M. C. T. REILLY.

POINTS FROM LETTERS

Retaining Fee

Dr. EGAN R. BROOKS (near Stockport) writes: I deplore the suggestion made by Dr. P. B. Corbett (May 24, p. 741) that a retaining fee should be paid for each day over the "booked" date of a confinement. . . . One must remember, whatever the method of calculation, the resultant date "is but the centre of a fortnight on any day of which labour may ensue, and many cases will be found to terminate a few days earlier or later" (R. W. Johnstone). Appreciating this fundamental fact, a practitioner thus tacitly accepts a contract to make himself available for the labour whatever the ensuing date. . . .

Corrosive Drugs

Dr. C. M. HEANLEY (Salisbury, Rhodesia) writes: The recent articles (March 22, p. 367, and May 10, p. 640) in the *B.M.J.* on ferrous sulphate poisoning raise the question whether gastric ulcer can be produced by the custom of putting up corrosive drugs in tablet form. I think I have heard of haematemesis and melaena being caused by aspirin taken in solid form.

Bewilderment

Dr. G. C. PETHER (Colchester) writes: Is it not time that an absurd situation such as is here described should be made impossible? A workman develops dermatitis while engaged in a process which may or may not be the cause of his trouble. He is treated by the factory doctor until the condition is nearly cured. He is then sent by the employers' insurance society to see consultant A. This gentleman is given no information about previous treatment, little information about the man's work, may gather little about his domestic hazards, and does not notice his bad teeth. Somewhat later, when the condition has cleared up entirely, the workman is sent by his own solicitors acting for the trade union to consultant B. This gentleman is equally informed, or misinformed, of the relevant facts. In the name of all that is wonderful how can useful opinions be obtained in this way? The victim, an uneducated man, is bewildered and made resentful by these absurdities. He has every reason to feel like this.

The Revolution in Anaesthesia

Dr. G. DUNDERDALE (Nanyuki, Kenya) writes: What a frightful picture of modern anaesthesia is given by Dr. John Halton (April 19, p. 543). Apparently nowadays we try to paralyse as many of the "systems" as possible with powerful synthetic drugs, and plug in as many more to counteract the ill-effects of those already used. Having pushed the patient under with an intravenous barbiturate we carry on with a complicated apparatus delivering a variety of gaseous mixtures, and if we are incapable of providing adequate muscular relaxation we resort to a synthetic substitute for South American arrow poison, which paralyses the diaphragm in addition to every other muscle, so that the patient must then have forcible respiration through a bag and some other powerful stimulant to overcome the muscular paralysis. And there must be no anoxia! And after all this, though the patient "can cough on the table, and will often speak," though "attached firmly to that particular form of anaesthetic apparatus favoured by the anaesthetist," he must be nursed in a steam tent and an adequate fluid intake assured—by the intravenous route if necessary. After reading this I sincerely hope that if I have to have a major operation, which God forbid, I may still find someone of my own generation who can give a decent inhalation anaesthetic, such as I learnt from Sir Francis Shipway. . . . There are, of course, operations where the ordinary inhalation anaesthetic is inapplicable and for which special methods must be applied. . . .

Certificates

Dr. H. D. FORBES FRASER (Crowthorne, Berks) writes: Mr. X. laid up his car in 1940, and his tyres were commandeered. In 1947 he applied for a permit to purchase new tyres, explaining that he had mislaid the receipt for the old ones, which was also a promissory note for the permit to purchase. This problem puzzled the clerks in the Regional Petroleum Office. A totally inapplicable form was supplied. This form was taken to the appropriate office, and returned as being inapplicable. This situation stumped the clerk in the Divisional Petroleum Office. However, after a great deal of explanation, and wishing to be helpful, he advised Mr. G. to get a medical certificate. I wrote for him a certificate that in my opinion Mr. G. is entitled to replacement of his tyres, and also a covering letter to the effect that I was willing to certify—what should I certify?—that he is alive or dead? ill or well? that I do or do not know the national importance of his business? What has it to do with a doctor anyway? Surely an affidavit about the lost form, sworn before a commissioner of oaths, would be a more appropriate procedure. I have received no guidance, but Mr. G. has his permit "on grounds of disability."

Obituary

A. F. BERNARD SHAW, M.D., F.R.C.P.I.

Prof. A. F. Bernard Shaw died on June 3 at Newcastle-upon-Tyne. He had been professor of pathology in the Egyptian University of Cairo and since 1938 in the University of Durham. He was also pathologist to the Royal Victoria Infirmary, Newcastle-upon-Tyne, and had been an adviser in pathology to the Emergency Medical Service.

Arthur Frederick Bernard Shaw was born on Aug. 17, 1888, at Carraig-na-Chattan, Co. Dublin. Educated at Christ's College, Blackheath, and at Trinity College, Dublin, he graduated in 1909, being senior moderator in natural science and winning the medal of the Dublin University Biological Association. After qualifying M.B., B.Ch., and B.A.O. in 1911, and acting for a short period as demonstrator of pathology, he was elected to a Rockefeller Fellowship. This enabled him to visit the Johns Hopkins University at Baltimore for postgraduate study. Proceeding M.D. in 1913, he became a Fellow of the Royal College of Physicians in Ireland in 1922, after a period as senior assistant medical officer of health at Cardiff. His appointment there was interrupted by the 1914–18 war, when he served as a medical officer in Gallipoli, Sinai, and Palestine, and as pathologist to the 69th General Hospital with the Egyptian Expeditionary Force. In 1919 he was appointed lecturer in pathology at the University of Durham College of Medicine, and assistant pathologist at the Royal Victoria Infirmary, and in 1926 he became honorary pathologist to the Princess Mary Maternity Hospital, Newcastle-upon-Tyne. For his services to Egyptian medicine as professor of pathology at the University in Cairo from 1933 to 1938 he was made a Commander of the Order of the Nile. He was a member of the Pathological Society of Great Britain and Ireland and was responsible for many papers on pathology, and particularly on haematology, which appeared in this *Journal* and in other medical journals.

He had been a member of the British Medical Association for many years and was vice-president of the section of pathology and bacteriology at the annual meeting in 1933. He was also president of the Egyptian Branch in 1938.

J. C. S. writes: We are yet too near to Shaw's death and too much in the shadow of his illness to measure his greatness. But greatness it was, both of character and of mind, and the nobility of the one and the depth of the other will be known only to those whom he taught or with whom he was intimate, for he was a reserved and modest man given much to quiet meditation. His interest in his subject was influenced greatly by his early training in classics and biology, by his passion for truth and logic, and by his abundant scholarship. His was indeed the most cultured mind of any man I have ever known. Shaw's achievements can be measured by knowing something of the man. He had a stern but noble countenance covering a modesty which was at times embarrassing. Deeper still lay a generosity of heart and warmth of feeling which were revealed in a smile of great charm and in acts of exquisite courtesy. He loathed self seeking and insincerity and was suspicious of Anglo-Saxon compromise. In aesthetics he was relatively insensitive to the visual arts, but vividly sensitive to the form and function of words. There is little wonder that his lectures were unforgettable. They were precise, sincere, and eloquent, with the right and unusual word always coming to his aid. He saw his pathology as part of man's whole struggle with his environment, but would at times laughingly confess that many of its evidences came near to metaphysics. Devoted to the scientific method and concerned about the function of the university in the modern world, he was intolerant of the compromises which would link commercial and professional interests to a university department, and was anxious to rid the teaching hospital of those burdens and arrangements which prevented it from doing its proper work. It appeared to him logical that a teaching hospital with the functions of conserving knowledge, of advancing knowledge, and of setting the highest standards of practice should be arranged, administered, and staffed entirely for those purposes, and he saw the solution of this only by making these institutions university

departments in the true sense of the term. He could argue these things with fervour but would cease from arguing at the first sight of fixed prejudice or blind ignorance.

Shaw's work in pathology covered three periods, with a Rockefeller Fellowship year at Johns Hopkins in America interposed. The first was as a lecturer in Newcastle, where he came in 1919 from an early training in Trinity College, Dublin, and an experience in pathology during the war. His second period was as professor of pathology at Cairo, and the last again at Newcastle, where he held the chair until his death. In his earlier period, at a time when he was impatiently busy with research, he worked under a burden of routine and teaching, and in physical circumstances so detrimental that they are horrid to look back upon. In spite of the interruptions of illness he completed work which was widely noticed, on the influence of the vasomotor action on the leucocytic count of peripheral blood, on the diurnal tides of the leucocytes in man, and on constitutional abnormalities of the leucocyte. In addition he added to our knowledge of the pathology of rheumatic fever, and of Riedl's thyroiditis in articles which are still standard references. In Cairo he had scope for the first time to create a department nearer to his desire. This he did in a way which was a testimony to his powers of organization and his originality, and he left it a monument to his efficiency and sense of justice, for which the Egyptian Government honoured him. In Egypt he made a notable contribution to the pathogenesis of pulmonary schistosomiasis and to the pathology of the spleen, but he was quickly absorbed in reviving the study of paleopathology with new techniques. Here also he found an outlet for his lifelong interest in anthropology and the history of civilizations. Some of his most memorable lectures were those in which he used his study and experience of the Egyptian civilization to illustrate his views on pathology and the course of civilized life. Shaw returned to Newcastle as professor of pathology in 1938. The war was quickly on us, but in spite of difficulties he was able to infuse activity into builders and architects to commence a building which would become an institute of pathology within the grounds of the Royal Victoria Infirmary, where pathological anatomy, experimental pathology, biochemistry, and bacteriology would have their place. This was another fruitful period of his life in spite of the inclemencies of war and interruptions of illness. His teaching and his influence then reached their full maturity. Shaw was a lovable man. Uncompromising in his conception of good and evil, of truth and untruth, he may have appeared obstinate at times, but the tragedies of the modern world saddened him, and he saw no way out except by combining reason with science and with that experience of things which we call culture. He lived as near to his own high conception of life as any man could. How strict and distinctive that conception was is known to his friends. By that he will be judged and remembered.

D. J. MACKINTOSH, C.B., M.V.O., M.B., F.R.S.ED.

Dr. Donald James Mackintosh, for forty-five years medical superintendent of the Western Infirmary, Glasgow, died on June 12. He was appointed consultant superintendent and succeeded by Dr. Loudon MacQueen as medical superintendent on Jan. 1, 1937.

Dr. Mackintosh, who was born in the parish of Shotts, was educated first in his father's school and later in Madras College, St. Andrew's. A student of Glasgow University, he qualified M.B., C.M. in 1884. He was house-surgeon at the Glasgow Eye Infirmary and later one of the resident medical officers at the City of Glasgow Fever Hospital. He was the senior resident there until he was appointed medical superintendent of the Victoria Infirmary at its opening in 1890. Two years later he became medical superintendent of the Western Infirmary and began then to build up his great reputation as an authority on hospital administration and construction. Thus, at the request of the South African Government, he went out to the Cape to advise on the construction of a large new hospital. He was also one of the advisers consulted during the reconstruction of the Royal Infirmary and the Royal Hospital for Sick Children at Glasgow.

Dr. Mackintosh was largely responsible for the organization and equipment of the Scottish National Red Cross Hospital which served at Kroonstadt during the South African War. Later, when the Territorial Force was instituted, he commanded the 3rd Scottish General Hospital, with the rank of lieutenant-colonel. On the retirement of the late Sir George Beatson he was appointed A.D.M.S. of the Lowland Division. By November, 1914, he was supervising the administration and organization of all military, war, and Territorial general hospitals in the Glasgow area. Col. Mackintosh's services in connexion with the volunteers, the Territorials, and ambulance work led to his appointment as Officer-in-charge of the 1st Transport (Glasgow Company) Royal Army Medical Corps. He was also a member of the Council and Executive of the Scottish Branch of the British Red Cross Society; chairman of the Council of St. Andrew's Ambulance Association; and chairman of the medical and equipments committee of the Scottish National Red Cross Hospital.

Dr. Mackintosh had been a member of the British Medical Association for almost sixty years. He served as a member of Council in 1908, and again in 1911, after being a representative at the Annual Representative Meetings in 1907 and 1908. In 1915 he was president of the Glasgow and West Scotland Branch, and in 1920 he was appointed to the Scottish Consultative Council. At one time he was vice-president of the British Hospitals Association; honorary secretary of the Association for the Registration of Nurses in Scotland; and a member of the council of the College of Nursing.

Dr. Mackintosh's varied career brought him many honours and distinctions. For his work during the 1914–18 war he was made C.B. He was also a member of the Victorian Order, an honorary associate of the Order of St. John of Jerusalem in England, and a Knight of Grace of that Order. In 1912 his own university conferred on him the honorary degree of LL.D. Early in 1929 the Secretary of State for Scotland made him a member of the Central Liaison Committee for Voluntary Hospitals in Scotland. Later in the same year he was appointed a Deputy Lieutenant for the City of Glasgow.

Dr. GWILYM LLEWELYN PIERCE, of Abercynon, Glam., died on May 14 at the age of 56. The elder son of the late Dr. Hugh Davies-Jones, who gave his children an old family name, Dr. Pierce was born at Llangollen and came to live at Mountain Ash when his father succeeded to the practice of his brother, the late Dr. D. Davies-Jones, in 1903. Educated at Dinglewood School, Colwyn Bay, he qualified at Edinburgh in 1914, and served in the R.A.M.C. in the 1914–18 war until he was invalided. He then joined his father in practice for a short time, but took service in the Merchant Navy, in which he remained until 1919, when he returned to Mountain Ash. On his father's death in 1921, he set up practice at Penrhiwceiber, leaving his younger brother, Dr. Howell Pierce, in the family practice. In 1932 he again broke new ground and established himself in practice at Abercynon, where he remained until his death. From the outset of his career Dr. Pierce identified himself closely with all aspects of public life, and was formerly High Constable of Miskin Higher. In the field of first aid he was a tireless worker, carrying on in the tradition of his family, his uncle having first introduced the movement into the Aberdare Valley. At the time of his death he was Commissioner of the Order of St. John for the district, and was soon to have been the recipient of further honours. He was a Freemason and a member of St. Paul's Cathedral Lodge. He is survived by his wife and three children, the elder daughter a medical student at Edinburgh.

J. G. J. writes: Gwilym Pierce was a great B.M.A. man. He was treasurer of the North Glamorgan and Brecknock Division and had been its chairman; he was also vice-chairman of the Local Medical War Committee. But perhaps more important than these and other offices which he had held was the great enthusiasm and energy he brought to Association affairs. Gwilym, as he was affectionately known, was always present, whether at Divisional Executive, Branch Council, or Glamorgan Panel Committee meetings, and always his contributions to the discussions were penetrating, realistic, and honest. We have lost a grand colleague, but his work for the Division will endure as an inspiration to those who remain. Gwilym Pierce was a family doctor, and it was as such that he achieved his greatest success. The esteem in which he was held by his patients, and indeed by the whole community, was most revealing, and at Mountain Ash on May 17 great crowds bore witness to the unique position which he held in the affections of the people.

Medico-Legal

HOSPITAL'S LIABILITY FOR A PATIENT'S PROPERTY

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

Hospitals take charge every day of the personal belongings of many hundreds of admitted patients, and it is surprising that the question of their responsibility for the safe keeping of this property so rarely comes before the courts. A lady was admitted as a patient to the St. Pancras Hospital, which is maintained by the London County Council as part of their statutory duty. The hospital authorities took charge of some jewellery and a cigarette case which she brought with her, and stored them with hundreds of other articles in envelopes stacked on the floor of a room which an expert burglar could enter without difficulty. The patient's sister wrote asking for confirmation of the contents of the patient's handbag, mentioning a diamond ring and clip and asking where these were deposited. The letter was not answered, apparently on the ground that the hospital did not give receipts for property taken. The patient's property was stolen, probably by a burglar. The patient sued the L.C.C. for the return of her property or its value and damages for its detention, alternatively for damages for conversion, negligence, or breach of duty.

Mr. Justice Henn Collins said[1] that the degree of care expected of the Council's employees depended on whether they were "gratuitous bailees" or received something for taking care of the property. They had a statutory duty to receive the patient, and it was a necessary precaution on their part to take possession of all the property she brought. They were in a position to recover all the expenses to which they were put, including the expense of keeping her property and entering it in a book. If a bailee was compensated for his pains he was bound to take at least such care as men of common prudence would take. Some measure of the degree of care required in this case had been provided by witnesses from the hospital who said that if they had realized that the articles had been so valuable they would have put them in the safe. The judge thought the hospital authorities were wrong to assume, as seemed to have been their practice, that the articles which they received were all trumpery. They admitted persons of the higher as well as the lower income groups, and there was no presumption that patients' property was not of value. If the authorities chose to treat it as worthless or as offering little temptation to thieves, they took a risk on themselves. Much of the property which fell into their hands was obviously of little value, but a degree of care which was reasonable in the custody of articles which offered little temptation was not reasonable in that of articles which might offer more temptation. They had been warned that the property contained diamonds, and there seemed to have been some failure in the administration which prevented notice that the articles must be considered valuable from reaching those concerned. The L.C.C. were therefore liable. In awarding damages his lordship held that they must include purchase tax, for this must be paid if an article were bought retail. The tax was a real addition to the price which had to be paid to replace the lost articles. He thought the proper value of the ring was £700 and of the clip £900, to which must be added the agreed price of £40 for the gold cigarette case—a total of £1,640, for which he gave judgment.

Comment

This decision suggests some interesting questions. Presumably if the patient had entered a voluntary hospital and paid nothing for her maintenance, the hospital would have been a gratuitous bailee and have been liable only for the results of gross carelessness. Payment for a bed in a voluntary hospital would presumably make the hospital a bailee for value; would payment of a contribution assessed by the almoner do the same? And what will be the position under the National Health Service?

[1] *Martin* v. *L.C.C.* (1947) 1 All E.R. 783.

Medical Notes in Parliament

PENICILLIN BILL

The Second Reading of the Penicillin Bill, which has already passed the House of Lords, was moved in the House of Commons on June 9. Mr. ANEURIN BEVAN said that while penicillin was in short supply its purchase and distribution had been controlled by Defence Regulations. As soon as it had become obvious there was enough of this substance for general use the Government had to decide whether control should be continued. The view of the Government was that if control were continued it should be by a Bill passed by the House of Commons. Persons who had special knowledge about this substance were unanimous that there would be great danger to the public health if it were unrestricted in sale and consumption. They knew that if it were consumed over a long period in small quantities it would establish in the organism a resistance to its beneficent effects. It was highly undesirable that this valuable substance should be the plaything of quacks, sold as penicillin lipstick, penicillin rouge, and penicillin powder. It would be appalling if, as a consequence of misuse, the population might receive no advantage from it because it would have developed resistance in those who took it. The decision therefore was that a short Bill would empower the Ministry of Health to control the sale and distribution of penicillin. The Bill was concerned only with the sale of the drug to the individual consumer. The Government did not wish to impose controls on the sale of penicillin in bulk or for export. It was not afraid of any shortage of supply. The Bill laid down that penicillin could be given only on the certificate of a qualified medical practitioner or veterinary surgeon.

"Great Expectations"

The Bill also took power to deal with other drugs where control might later be found to be necessary and to which the same definition applied. One called streptomycin had caused Mr. Bevan considerable trouble. Great expectations had been carelessly aroused about it, but the Ministry of Health knew that in some instances this drug had caused definite harm. In other instances, although a healing effect had been claimed, that had not been established. Other investigations of an analogous kind were going on which, if they proved successful, would transform the whole field of medicine, but the Government was anxious that when these were perfected it would possess power to prevent their thoughtless consumption and commercial exploitation in a manner injurious to the public. Therefore the Bill took power to control those substances by Regulation after the Ministry had received the advice of the Medical Research Council about them. When the Bill went into committee he would move amendments dealing with some of the criticisms which had been made in the House of Lords.

Sir JOHN MELLOR commented on the fact that the control of the Ministry of Supply over penicillin on the ground of scarcity had been maintained after the scarcity passed away. He described the Bill as a pretty tall order. To control a therapeutic substance which could not be described as a poison or a dangerous drug was a novel step. While some measure of control should be retained Parliament should be careful to see it did not go beyond what was necessary and was not retained longer than was necessary. He asked whether the Medical Research Council had been consulted on the provisions of the Bill. He gathered that medical opinion had not yet crystallized in this matter. It was impossible at present to know how far it was necessary to control the use of penicillin, and for that reason he would move in committee to limit the operation of the Bill to five years. In a recent debate Col. Stoddart-Scott, who was a qualified medical practitioner, said that penicillin toothpaste and ointment ought to be free of control.

Mr. BAIRD said the whole of the dental profession thought that would be completely wrong and would cause disaster.

Dr. HADEN GUEST said penicillin, when used in the wrong way, became a very dangerous drug because what was called "penicillin resistance" could be built up. That situation had already arisen in Japan in regard to certain diseases, and the people concerned—in this case Service men—were no longer helped by penicillin when they fell victim to disease. He assured Sir John Mellor that representatives of the medical profession in the Services agreed the control of penicillin must be rigid or it would lose its effect and cease to be a remedy.

"Freedom to Doctor Oneself"

Mr. LINSTEAD welcomed the Bill but said there was a considerable onus on the Minister to prove his case. Freedom

to doctor oneself ought not lightly to be given up. In this instance Mr. Linstead thought the Minister had proved his case. As the experience of the treatment of venereal disease among troops in Italy and Japan had shown, it was possible to build up a penicillin-resistant organism, with the result that penicillin became no use in treatment. It appeared to people who studied the Bill that much of the control was given away in Clause 1 (2), which provided that anyone running an institution which he described as a "nursing home" was free to purchase any quantity of penicillin which he desired. Yet use by such a purchaser of the penicillin was in fact prohibited under the Bill. In Clause 2 the Minister took power to control additional substances. As the Clause was now drafted these substances must be produced by living organisms, but it was likely that research laboratories might find they could be produced by chemical action. It would be desirable to look at that definition again, unless the scientist who produced the substance was to be regarded as a living organism. He drew attention to the lack of a specific power of enforcement and suggested that the inspectors appointed under the Pharmacy and Poisons Act might be used.

Mr. CHRISTOPHER SHAWCROSS welcomed the Bill, as the only factory which made penicillin in this country was in his constituency. He hoped that the definition of "other substances" might be enlarged in committee so that more restrictions might be placed upon what was probably the biggest, the most harmful, and most shameful racket ever organized by private enterprise—namely, the patent medicine industry.

Mr. SIDNEY MARSHALL said it had never been decided that adrenaline and insulin should be controlled by Act of Parliament. Penicillin, which received a great deal of false approbation from the medical profession, was supposed to achieve miracles. At one time arsenic preparations were supposed to be the only specifics in the treatment of venereal disease. Now they were told that penicillin was the one great specific for that disease. It was unfortunate that this medicament which had so many false claims made in regard to it should have received the attention of Parliament as it had done. It had failed in many cases.

At this point the debate stood adjourned, although an agreement had been made to take the Second Reading that night.

"Closed Shop"

When the debate was resumed on June 12 Mr. E. P. SMITH said that it had been clearly demonstrated that control was necessary. Nevertheless he objected to Clause 2 (1), which extended the provisions of the Bill to other substances and gave the Minister power to control substances which had not even been discovered. Moreover the Bill limited the use of penicillin to duly qualified medical practitioners and therefore made the question one primarily of the practitioners' registration and only secondarily of his qualifications. Mr. Smith said that he himself, when he had reason to believe that he was seriously ill, invariably called in a doctor who had been struck off the *Medical Register*, because he could not sign a death certificate and could not avoid the consequences of any mistake by the simple expedient of having him quietly buried or cremated. He regarded the restriction of the right to prescribe penicillin to duly qualified practitioners as a disagreeable manifestation of the principle of the "closed shop."

The Bill was then read a second time and sent to a committee of the whole House.

Day Nurseries

Mr. SYDNEY SHEPHARD drew attention to the provision of day nurseries. The Government urged mothers with young children to go out to work and leave their children in day nurseries, but local authorities were closing these down on the grounds of expense. Last year 167 of these nurseries were closed, although the textile trades were 150,000 women short, the clothing trades were 100,000 short, and the laundry trades 23,000 short.

Mrs. LEAH MANNING said there was a general feeling that mothers with very young children should be at home with them and not in the factories. She advocated the institution of day nurseries near, or even at, factories.

Dr. HADEN GUEST said that in his constituency the need for extra nursery accommodation at a reasonable price had been brought emphatically to his notice.

Mr. ANEURIN BEVAN said in 1939 there were 104 day nurseries in England and Wales. In 1944 the number increased to 1,550, with places for 71,000 children. In 1947 these figures fell to 900 nurseries, with places for 44,000 children, but in the meantime 370 nursery schools had been provided for 19,000 children. These figures showed a higher proportion of women in industry and of nursery facilities than in time of war. The Government regarded the substitution of nursery schools for day nurseries as a better solution. It must not allow itself to be panicked into recruiting women into industry if as a consequence it caused neglect of young children. They had about 150,000 children in the infant departments of primary schools, and about 250 wartime nurseries had become nursery schools, so they were making some headway and hoped to expand when the need was proved. They gave an average grant of 50% towards the cost of nursery schools, and he could not agree to increase the proportion. He was not sure what his powers were in regard to crèche facilities in factories. There was not legislative power at present, and not all factories were desirable places for young children. He would see to what extent it was possible to provide crèches in suitable factories so that the mother could look in during the day at the baby and could take it home with her straight away.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Titles of degrees of M.B., B.Chir., were conferred by diploma on N. J. Pease (Newnham College) during May.

UNIVERSITY OF GLASGOW

George Macfeat Wishart, M.D., F.R.F.P.S., Gardiner Professor of Physiological Chemistry, has been appointed Director of Postgraduate Medical Education in the University.

UNIVERSITY OF WALES

The following candidates have been approved at the examination indicated:

TUBERCULOUS DISEASES DIPLOMA.—Agnes P. Downie, Mary Farquharson, A. Gauhar, G. R. Hales, H. B. Kelly, R. B. Leech, S. P. Nagrath, Jacomina A. Richter, S. K. Sen Gupta, S. N. Setty, N. B. Shah, T. Walker.

The Services

Air Commodore T. McClurkin has been appointed Honorary Physician to the King and Air Vice-Marshal D. McLaren, C.B.E., and Air Commodore F. J. Murphy, C.B.E., have been appointed Honorary Surgeons to the King in succession to Air Vice-Marshals K. Biggs, C.B.E., M.C., A. E. Panter, C.B., and T. J. Kelly, C.B.E., M.C., respectively, who have relinquished their appointments on retirement.

The following officers have been awarded the Efficiency Decoration of the Territorial Army: Majors (Honorary Lieut.-Colonels) J. W. Galloway, and D. Laing (T.A.R.O.), Major J. Burns, M.C., and Captain B. St. J. Steadman, R.A.M.C.

ROYAL AIR FORCE: MEDICAL BRANCH

A scheme to grant short service commissions to registered medical men of British nationality who wish to serve in the R.A.F. Medical Branch, or who wish to re-enter the Service, has now been approved. By its terms doctors under 30 years of age on application (for the next few years the age will be 32) will be considered for the grant of commissions for a period of four years on the active list, followed by a period of four years on the reserve. During his service on the active list a medical officer will be considered for the grant of a permanent commission. Should he not be selected for a permanent commission he will be eligible for a gratuity of £600 on leaving the service on completion of four years' active list service on the short service commission.

The rank on entry will normally be that of Flying Officer, but allowance will be made for the full period of any previous service as a medical officer in either the Royal Navy, the Army, the Royal Air Force, or the Indian Medical Service. There are also provisions under which entrants may first engage in a whole-time postgraduate appointment in a recognized hospital, or complete such an appointment if already held; in either case the period of the appointment, up to a maximum of one year, will count towards seniority in the rank of Flight-Lieutenant. Similarly an entrant who has previously held such a postgraduate appointment may receive an antedate of his commission equivalent to the period of the appointment, but not exceeding one year.

Accepted applicants will be required to serve in any part of the world and will be required, on entry, to pass an examination by a Service medical board to assess their fitness to do so, and of their fitness to fly as passengers. Further particulars can be obtained on application to the Under-Secretary of State for Air (D.G.M.S.), Awdry House, Kingsway, London, W.C.2.

DEATHS IN THE SERVICES

Lieut.-Colonel M. M. LOWSLEY died at his home in Bradnich, Devon, on May 8, at the age of 74. He was the fifth son of the late Luke Lowsley, of Hampstead Norris, Berks, and was educated at Chelterham College and Charing Cross Hospital. He qualified in 1896 and was commissioned in the R.A.M.C. in 1898, retiring in 1922. He then went into general practice at Bradninch, retiring from that in 1937. He served with distinction during the first world war, being twice mentioned in dispatches and awarded the D.S.O. and the Greek Meritorious Medal. During the second world war he served continuously on medical boards and in the Home Guard. He took a great interest in local government and was for a long period on the Wokingham Rural District Council.

Surgeon Rear-Admiral H. M. WHELAN, formerly officer commanding the Royal Naval Hospital, Plymouth, died on May 27, at the age of 57, after a long illness. Hamlet Mark Whelan was a son of the late Fleet Surgeon J. H. Whelan; educated at University College, Cardiff, and the London Hospital, he qualified in 1912. He joined the naval medical service the same year and served in the cruisers *Essex* and *Adventure*, and during the 1914–18 war at the R.N. Hospital, Chatham. Subsequently, he was in charge of the R.N. Hospital at the Cape of Good Hope, which appointment he retained until 1943, when he became Surgeon Captain (surgical division) of the R.N. Hospital, Plymouth. In 1944 he was promoted rear-admiral and became Principal Medical Officer, Western Approaches. He was appointed an honorary surgeon to the King in 1946.

In this column of the *Journal* of June 7 (p. 830) Sir Henry L. Tidy, K.C.B., should read Sir Henry L. Tidy, *K.B.E.*

EPIDEMIOLOGICAL NOTES

Smallpox

Contacts remain under surveillance at Barnsley C.B., Bilston U.D., and Wakefield C.B. The last patients were removed on June 4 and the cropping period for a new generation has been entered, but no further cases have been reported at the time of going to press.

At Barry U.D., Glamorgan, a woman aged 28 was removed as a case of suspected smallpox on June 13, and the usual precautions were taken. The diagnosis is still in doubt.

The diagnosis in the initial Wakefield case has now been confirmed by the recovery of variola virus on egg culture.

The last case was removed from Sheffield on May 21, and there are good reasons for believing that the outbreak there has terminated.

The period of surveillance of contacts at Coseley expired on June 16 without further incident. The outlook here is hopeful.

Discussion of Table

In *England and Wales* infectious diseases were less prevalent. There were falls in the incidence of measles 516, whooping-cough 222, and scarlet fever 96.

The largest decreases in the notifications of measles were Essex 240, Worcestershire 152, Lancashire 142, and Kent 75; the largest increases were Glamorganshire 164, Isle of Ely 83, Hertfordshire 63, and Somerset 53. Small decreases in the incidence of whooping-cough were recorded in most areas, and the largest declines were Kent 48 and Essex 32. In contrast to the general trend large rises in the number of notifications occurred in Yorkshire West Riding 75 and Middlesex 45. There were no changes of any size in the local returns of scarlet fever. The only variations of note in the returns of diphtheria were a decrease in Lancashire 17 and an increase in Durham 17.

The notifications of smallpox were 6 higher than in the preceding week, giving the largest weekly total for recent years. The 14 cases were distributed in three areas, Yorkshire West Riding, Barnsley C.B. 11, Sheffield C.B. 1, and Staffordshire, Coseley U.D. 2.

In *Scotland* decreases were recorded in the notifications of whooping-cough 42 and acute primary pneumonia 15, the only increase being that for measles 36. The notifications of cerebrospinal fever in Glasgow rose from 15 to 29.

In *Eire* the incidence of measles increased by 28, while a fall was recorded for whooping-cough 12 and diphtheria 13. The rise in cases of measles was mainly contributed by Dublin C.B., with an increase of 22.

In *Northern Ireland* the only change of any size in the trends of infectious diseases was an increase of 13 in the notifications of measles.

Week Ending June 7

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 730, whooping-cough 2,050, diphtheria 196, measles 13,535, pneumonia 467, cerebrospinal fever 63, acute poliomyelitis 22, dysentery 53, smallpox 7, paratyphoid 16, typhoid 2.

No. 22

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 31.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases: a blank space denotes disease not notifiable or no return available.

Disease	1947 (a)	(b)	(c)	(d)	(e)	1946 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	73	3	46	6	4	54	8	33	—	—
Deaths		—	1				—	—		
Diphtheria	194	14	55	15	5	304	42	86	38	8
Deaths	1	—	1	—	—	2	—	—	1	—
Dysentery	46	4	19	—	—	163	15	46	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	—	—	—	—	2	—	—	—	1
Deaths		—					—			
Erysipelas			25	10	3			40	10	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				33					27	
Deaths	64	3	23	10	2	35	1	11	5	3
Measles*	12,314	545	177	110	34	3,931	967	640	78	5
Deaths	10	2	—	1	—	4	2	1	—	—
Ophthalmia neonatorum	56	6	12	—	—	64	4	23	—	—
Deaths										
Paratyphoid fever	7	—	1(A)	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	512	30	3	5	10	596	43	3	5	3
Deaths (from influenza)†	7	1	—	1	—	13	3	2	—	3
Pneumonia, primary			171	20				228	32	
Deaths		24		6	6		32		6	7
Polio-encephalitis, acute	3	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	18	2	4	4	—	9	1	1	5	—
Deaths		—					—			
Puerperal fever		2	18		—		1	20		—
Deaths										
Puerperal pyrexia‡	116	7	14	2	1	135	8	10	3	—
Deaths		1					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	886	75	147	22	42	1,070	88	176	31	30
Deaths	1	—	—	—	—	1	—	1	—	—
Smallpox	14	—	—	—	—	2	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	1	—	6	2	1	5	—	4	4	2
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,657	240	154	38	20	2,055	193	92	30	16
Deaths	13	4	1	4	1	10	2	3	1	—
Deaths (0–1 year)	395	47	74	26	15	321	46	63	25	12
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,476	696	582	175	111	4,336	678	615	194	126
Annual death rate (per 1,000 persons living)			12·1	11·0				13·5	12·4	
Live births	8,561	1329	1131	522	320	8,438	1273	1009	444	283
Annual rate per 1,000 persons living			22·8	32·9				20·3	28·4	
Stillbirths	273	32	29			264	33	29		
Rate per 1,000 total births (including stillborn)			25					28		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Medical News

West London Hospital Medical School

The youngest of the undergraduate medical schools, that of the West London Hospital at Hammersmith, will close shortly, and places will have to be found elsewhere for students who had intended to do their clinical training there. From a small beginning in 1937 with a few women students who were unable to obtain their clinical training at the schools where they had pursued a pre-clinical course, it gradually expanded to take 80 to 90 students, still mostly women, from U.C.H., King's College Hospital, and Oxford and Cambridge. No men have been admitted since 1941. The status of undergraduate teaching school within London University has been sought, but was finally turned down in March of this year, the chief reasons being that facilities for pre-clinical training are not available and to provide them would require considerable rebuilding, and additional staffing and expenditure. This decision is in accordance with the Report of the Goodenough Committee, which recommended the expansion of other medical schools and the ultimate closure of the West London. The future of this successful endeavour to provide opportunities for more women to qualify as doctors may lie within the British Postgraduate Federation, and it is envisaged that the school should become a centre for the training of specialists in medicine and surgery.

New Research Unit

The Medical Research Council is setting up a new research unit on the physiology of vision. Prof. H. Hartridge is to be the Director.

Confinements under N.H.S. (Scotland) Act

Criticism has appeared in the Press and elsewhere that under the National Health Service Act women confined in their own homes would be unable to have a doctor present, and that if complications arose the patient would have no choice of doctor. It has also been suggested that women would be expected to go to maternity hospitals during confinement to obtain the benefits of the new scheme. These points were raised at the annual meeting of the Central Council of Scottish Women's Rural Institutes and were the subject of a letter addressed by the Council to the Secretary of State for Scotland. The Secretary of State's reply points out that the criticisms are without foundation. A woman may choose whatever doctor she wishes to attend her at home, and he will also be responsible for antenatal medical examination, treatment, and supervision. Furthermore, if a woman wishes to be confined at home, she may be.

New Journal of Nutrition

The first part of a new quarterly, the *British Journal of Nutrition* of the Nutrition Society, will appear shortly. It will incorporate the *Proceedings of the Nutrition Society* and publish original work on all branches of nutrition. Papers for publication should be sent to Dr. S. K. Kon (British Journal of Nutrition), National Institute for Research in Dairying, Shinfield, Nr. Reading, Berks. The editorial board will consist of: D. P. Cuthbertson, J. N. Davidson, R. C. Garry, G. Graham, J. Hammond, E. M. M. Hume, S. K. Kon (chairman), I. Leitch, W. C. Miller, F. Yates, B. S. Platt, and J. A. B. Smith. Subscription rates for non-members of the Nutrition Society are £3 per volume of four quarterly parts; separate parts will cost £1 each. Subscriptions and inquiries should be addressed to the Cambridge University Press, 200, Euston Road, London, N.W.1.

Royal College of Midwives

The King has commanded that the College of Midwives, founded in 1881 and incorporated in 1886, shall be entitled the Royal College of Midwives.

Reduction of Local Authority Staffs

The Government's White Paper, the "Economic Survey for 1947," pointed out the necessity of expanding the nation's labour force and assumed a reduction in the numbers employed in national and local government. A circular from the Ministry of Health to local authorities invites them to reduce the numbers of their employees as much as possible.

Relief of Widows and Orphans

The annual general meeting of the Society for Relief of Widows and Orphans of Medical Men was held on May 21 with the president, Dr. R. A. Young, in the chair. The court of directors for the ensuing year was elected. The resignation of Dr. Blackett as secretary of the society was received, and in appreciation of his services as secretary for a period of 42 years Dr. Blackett was elected a vice-president. The accounts for the year ending Dec. 31, 1946, were presented. The total amount distributed in grants during 1946 to 52 widows was £3,912 10s., and, in addition, a Christmas present of £20 was made to each widow, making the total amount distributed £4,952 10s. It was reported that the membership of the society was 281, of which 160 were life members and 121 ordinary members. Particulars of the society may be obtained on application to the secretary, 11, Chandos Street, London, W.1.

First Woman President

The Pharmaceutical Society has elected as its president Mrs. J. K. Irvine, M.B.E., who is at present Superintendent of the Ministry of Health's South-eastern Pricing Office. She is the first woman president to be elected in the 106 years of the Society's history.

Convalescent Diabetics

Special convalescent facilities are now available for diabetic patients at the British Red Cross Convalescent Home, Burley-on-the-Hill, Oakham, Rutlandshire (for men and boys), and at St. Mary's Convalescent Home, Birchington-on-Sea, Kent (for women and children). These homes educate diabetics to look after themselves and include training in giving injections, doing urine tests, and cooking. Further particulars may be obtained from the Almoner, Convalescent Homes, Diabetic Association, 9, Manchester Square, London, W.1 (Tel. Welbeck 6001).

Hospital Service Plan

The Hospital Service Plan, introduced five years ago by King Edward's Hospital Fund for London, has been extended to include an additional £1 1s. per week, cover for tonsillectomy previously excluded, and a choice of three different schemes.

Zodiac

The Aberdeen University Medical Society has just issued the first number of its journal, published under the title of *Zodiac*. It is intended that this new publication shall appear twice yearly, in September and March.

Chartered Society of Physiotherapy

The Society of Physiotherapists, which was started fifteen years ago, has now been wound up, and as a result of discussions with the Chartered Society of Physiotherapy the latter society has agreed to accept bio-physical assistants on the Society of Physiotherapists' sponsorship for enrolment on the C.S.P. Register.

Medico-Legal Dinner

The Medico-Legal Society on June 12 held its first dinner since the outbreak of the recent war. Sir Frank Newsam, of the Home Office, proposing the toast of "Medicine and Law," paid a tribute to Sir Norwood East and the medical profession for their services to the Home Office and announced that his Department was preparing a Criminal Justice Bill that would enable courts to take full account of an offender's mental condition. Lord Schuster, responding, wondered whether the Bill would be too elaborate for those who would have to operate it. Sir Maurice Cassidy, pleading that he was "the apotheosis of the dumb doctor," spoke of the truth sought by doctors and lawyers. Lord Moran proposed the toast of "the Medico-Legal Society," and admired the way lawyers tore a problem apart to get at the essentials just as doctors dissected the human body. Sir Norwood East, the President, responded. He recalled that the Society was 46 years old and continued to increase in numbers, while vigilantly maintaining its high standards. He reviewed some of its recent activities, and concluded by referring to the device on the Society's journal—a woman symbolizing Truth being drawn from a well by the hand of Medicine on one side and of Law on the other.

D.D.T. Gravy

A man and his wife, their two children aged 6 and 9, and his brother-in-law, were admitted to the Manchester Royal Infirmary at 6 p.m. on Sunday, June 15. They were suffering from diarrhoea and vomiting as a result of taking D.D.T. mixed with gravy. The man had helped his wife to make the gravy, as was his custom, but instead of stirring 2 tablespoonfuls of flour into 1 pint of gravy, he stirred in 2 tablespoonfuls of what was said to be pure D.D.T. This was kept in a similar type of tin to the flour. The gravy was eaten about 3 p.m. by the five people, and the brother-in-law noticed a metallic taste at the time. Two hours later all five were seized with diarrhoea and vomiting, varying in severity according to the quantity consumed. The father, who was fond of gravy and consumed more than the others, was the most affected. On arrival at the hospital they all complained of dizziness and tingling in the hands and feet. The only one of the five about whom any anxiety was felt was the father. There was a good deal of difficulty in passing the stomach tube on account of coughing. After one spasm of coughing he was unconscious for a few moments. The mother, one child, and the brother-in-law, all recovered rapidly and were allowed to return home later in the evening, since they lived near the hospital. The father and one child were still complaining of dizziness and nausea and were detained for the night. Both had fully recovered by Monday morning. If this was pure D.D.T. then the gravy presumably contained about 30 g. Assuming that half of it was wasted by being left in the pan or on the plates, each of the five individuals may have consumed the equivalent of 3 g., or perhaps more in the case of the father.

COMING EVENTS

Malaria Control

The annual malaria control courses for planters, miners, and others is to be resumed and this year will be held at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., from June 23 to 27 inclusive. The lectures and demonstrations will be given from 10 a.m. to 1 p.m. each day. Arrangements will be made to give lectures on other subjects such as housing, sanitation, etc., in the afternoons. The course is free. Applications to attend should be sent as early as possible to the organizing secretary, Ross Institute of Tropical Hygiene, Keppel Street, Gower Street, London, W.C.1.

Nutrition and Bread

The Sanderson-Wells Lecture will be delivered by Sir Jack Drummond, D.Sc., F.R.S., at the Middlesex Hospital, W., on Tuesday, June 24, at 4.30 p.m. His subject is "The Nutritional Value of Bread." The lecture is open to all members of the medical profession.

Paddington Medical Society

The annual general meeting of the Paddington Medical Society will be held at St. Mary's Hospital, Paddington, W., on Tuesday, June 24, at 8.45 p.m., when the president, Dr. L. Zeitline, will deliver an address on "Humour in Medicine." All medical practitioners are invited to attend.

Hygiene Congress

A Congress of School and University Hygiene will be held in Paris on June 25–29, under the auspices of the Ministries of Education and Public Health. Subjects to be discussed include the schooling of mental defectives, school meals, schools for visually defective children, and corrective exercises. Doctors from abroad interested in school hygiene are invited to participate. Inquiries should be addressed to the secretary-general of the congress, Dr. P. Delthil, 46, Rue de Naples, Paris (8e).

Faculty of Homoeopathy

A meeting of the Faculty of Homoeopathy will be held at London Homoeopathic Hospital on Wednesday, June 25, at 5 p.m., when Dr. John Paterson will read a paper on "Homoeopathic Philosophy Brought Up to Date."

Medico-Legal Society

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, June 26, at 8.15 p.m., when the president will read a paper on "Psychiatry and Degrees of Murder."

Faculty of Radiologists

The annual meeting of the Faculty of Radiologists (45, Lincoln's Inn Fields, London, W.C) will be held at Birmingham on Friday and Saturday, June 27 and 28.

Society for Endocrinology

A meeting of the Society for Endocrinology will be held at Guy's Hospital, S.E., on Saturday, June 28, at 10 a.m., when a symposium on "The Assay of Urinary Steroids" will be presented.

Lewis's Library and Bookshop

Messrs. H. K. Lewis and Co., Ltd. (136, Gower Street, London, W.C.), have asked us to bring to the notice of our readers the fact that they have arranged a staff outing for Saturday, June 28, and that, in consequence, their premises will be closed on that day.

Association of Clinical Pathologists

The 38th scientific meeting of the Association of Clinical Pathologists will be held at the Sir William Dunn School of Pathology, Cambridge, on Friday and Saturday, June 27 and 28. The programme is as follows: June 27: 9.30 a.m., Dr. K. S. Thompson, "Chiari's Thrombosis of the Hepatic Ostia"; 9.45 a.m., Dr. M. Bodian, "Pulmonary Haemosiderosis"; 10.10 a.m., Drs. G. T. Cook and B. P. Marmion, "Gastro-enteritis of Unknown Aetiology: Outbreaks at Leicester and Oxford, 1944–7," followed by a discussion to be opened by Dr. R. Cruickshank; 11.35 a.m., Dr. H. Sikl (Prague), "Lesser Known Histological Methods for Routine Use in the Laboratory"; 12 noon, Dr. R. M. Haines, "The Eye in Tuberous Sclerosis"; 12.15 p.m., Drs. J. S. Mitchell and A. M. Barrett, Symposium on "The Radiosensitivity of Tumours"; 2 p.m., demonstrations; 4.45 p.m., Dr. J. E. McCartney, "The Use of the Electron Microscope in Bacteriology"; 5.15 p.m., Presidential Address, "A Retrospect of British Pathology." June 28: 9.30 a.m., Dr. M. Hynes, "The Leucocyte Drift"; 9.55 a.m., Dr. J. Ungar, "The Antigenic Properties of Pertussis Vaccines"; 10.15 a.m., Dr. S. Sevitt, "Saline Haemolysin Test for Streptococci"; 10.30 a.m., Dr. F. Vanicek (Pilsen), Report on "Some Attempts to Simplify Diagnostic Methods in Clinical Bacteriology"; 11.30 a.m., Dr. A. Renshaw, "Blood Protein Variations in Rheumatic Diseases, with Remarks on Technique"; 11.50 a.m., Dr. J. V. Wilson, "Blood Viscosity as an Index of Activity in Chronic Rheumatism"; 12.10 p.m., Drs. E. J. King and R. J. Garner, observations on "The Colorimetric Determination of Glucose"; 12.35 p.m., Dr. C. E. Dukes, "Unsolved Problems in Genito-urinary Tuberculosis"; 2.30 p.m., Prof. H. R. Dean will conduct a party round the colleges and Dr. R. Williamson will show some early medical books.

Various demonstrations will be given from 2 p.m. on June 27 to 12 noon on June 28.

DIARY OF SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE

Section of Urology.—Thursday, June 26, 8 p.m. Clinico-pathological Meeting.

Sections of Laryngology and Otology.—Friday, June 27, Combined Summer Meeting at Brighton. Meeting in the Nurses' Lecture Room, Royal Sussex County Hospital. 10 a.m., Paper by Miss Winifred Hall and Mr. John McGibbon: The Association of Otitis Media with Acute Non-specific Gastro-enteritis of Infants. 2 p.m., Papers by Mr. V. E. Negus: Certain Anatomical and Physiological Considerations in Paralysis of the Larynx; Mr. W. E. Archer: The Treatment of Sub-acute Maxillary Sinusitis especially in Children. Film by Dr. Hollinger of "Bronchial Neoplasms" will be shown by Mr. G. H. Bateman.

Sections of Laryngology and Otology.—Saturday, June 28. Summer meeting at Brighton continued. 10 a.m., Clinical meeting in Grant Ward, Royal Sussex County Hospital. Discussion, 11.45 a.m. Film and Demonstration: Miss M. R. Dix and Mr. C. S. Hallpike: Pure tone audiometry in young children. A new technique.

POSTGRADUATE DIARY

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At West Medical Lecture Theatre, Edinburgh Royal Infirmary, Tuesday, June 24, 5 p.m., Dr. T. N. MacGregor: Sex Hormones in Theory and Practice.

LONDON SCHOOL OF DERMATOLOGY, 5, Lisle Street, Leicester Square, W.C.—Tuesday, June 24, 5 p.m., Dr. W. J. O'Donovan: Occupational Dermatitis. Wednesday, June 25, 5 p.m., Dr. C. W. McKenny: Technique of *X*-ray Treatment (Part II).

A clinico-pathological demonstration will be held in the Meyerstein Lecture Theatre of the Westminster Hospital School of Medicine, Horseferry Road, S.W., on Monday, July 7, at 5 p.m., when two cases of aplastic anaemia will be shown.

APPOINTMENTS

Miss Laura Margaret Dorothea Mill, M.B., Ch.B., has been appointed a Medical Commissioner of the General Board of Control for Scotland in place of Dr. Kate Fraser who retired recently. Dr. Mill has been in the service of the General Board of Control as a Deputy Commissioner since 1936.

Mr. Daniel Lamont, consulting surgeon at the Gilbert Bain Hospital, Lerwick, has been appointed an honorary member of the Association Française de Chirurgerie.

Dr. H. B. Lee, D.S.O., M.C., has been appointed a Nominated Member of the Executive Council of the Island of St. Helena.

HEWITT, S., M.B., B.S., D.P.H., Deputy County Medical Officer for Herefordshire.

LONDON COUNTY COUNCIL.—The following appointments are announced at the hospitals, etc., indicated in parentheses: *Medical Superintendent*, A. Mitchell, M.D. (St. John's). *Deputy Medical Superintendents*, R. G. Thomas, F.R.C.S.Ed. (Queen Mary's Hospital for Children, Carshalton); J. Sharkey, M.D. (Northern); R. D. Green, M.D. (Paddington); F. R. Leonard, F.R.C.S. (St. Leonard's); M. Twohey, M.D. (New End). *Senior Resident Surgeons*, I. A. Alexander, M.B., Ch.B. (Hackney); E. C. Chitty, F.R.C.S.Ed. (St. Stephen's). *Pathologist*, A. Beck, L.R.C.P.&S.Ed. (Group Laboratory, Northwestern). *Assistant Pathologists*, A. F. Mohun, M.B., B.S. (Archway Group Laboratory); S. C. Dobson, B.M., B.Ch. (St. Mary Abbots Group Laboratory). *Junior Assistant Pathologist*, R. Martlew, M.B., B.Chir. (Lambeth Group Laboratory). *Radiodiagnostician*, V. G. Peckar, M.B., B.S. (Lambeth and St. Charles'). *Assistant Radiodiagnostician*, G. M. Ross, M.B., Ch.B. (Hammersmith). *Junior Assistant Radiodiagnostician*, J. M. Corrall, M.B., Ch.B. (Hammersmith). *Assistant Medical Officers, School Health Service*, G. K. Lim, M.B., B.S., A. L. Thrower, M.B., B.S., Edith J. R. Parfit, M.D.

BIRTHS, MARRIAGES, AND DEATHS

The charge for an insertion under this head is 10s. 6d. *for* 18 *words or less. Extra words* 3s. 6d. *for each six or less. Payment should be forwarded with the notice, authenticated by the name and permanent address of the sender, and should reach the Advertisement Manager not later than first post Monday morning.*

BIRTHS

CAPPER.—On June 3, 1947, to Margaret (*née* Hutchinson), wife of J. I. Capper, M.B., of Merthyr Tydfil, a son.

ROSS.—On May 24, 1947, to Mary (*née* Long), wife of Kenneth Aird Ross, M.B., Ch.B., 74, Clare Court, Judd Street, W.C.1, a son.

TAYLOR.—On May 24, 1947, to Dinah (*née* Lidster), wife of Kenneth H. Taylor, F.R.C.S., a son.

MARRIAGE

POLLITT—ATTWOOD.—On April 30, 1947, at Castle Church, Stafford, Peter G. H. T. Pollitt, M.B., Ch.B., to Gwendoline Attwood.

Any Questions ?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Electronarcosis

Q.—*Could you give me information or references concerning electronarcosis in the treatment of psychotics ?*

A.—Electronarcosis is a modification of electric convulsive therapy. The machine used is different in that it has a device by which a continuous current can be run through the brain, since changes in the patient's resistance are compensated for by raising or lowering the voltage automatically. It is described in articles by Frostig *et al.* (*Arch. Neur. Psychiat.*, 1944, **51**, 232), and Tietz *et al.* (*J. Nerv. Ment. Dis.*, 1946, **103, 2**, 144). The treatment was started at hospitals in the neighbourhood of Los Angeles. The technique in man is to give the patient a current of about 180 milliamperes for half a minute and thereafter to decrease it gradually to about 65, gradually raising it again to 100 or 120 milliamperes. The total treatment lasts seven minutes. The current is much less than that given in electric shock (400 to 1,200 milliamperes), and animal experiments have shown that no irreversible changes occur in the brain. During treatment the patient remains in a tonic state for the first half-minute, when respiration is inhibited, and thereafter, by gradual reduction of the current, falls into a quiet narcotic state in which the muscles are hypertonic with flexion at the elbows and extension of the knees. The treatment is given three times a week for a month. A second course lasting a month can be given after a week's rest where recovery is not complete.

It is claimed that the treatment is successful in cases of schizophrenia where E.C.T. is relatively unsuccessful, and that the results are equal to those of insulin coma therapy. Only 47 cases, however, have been published to the writer's knowledge, but more work is expected. In 1946–7 treatment by electronarcosis has been started at the West London Hospital, St. James's Hospital, Portsmouth, Guy's Hospital, and Sutton Emergency Hospital.

Pink Disease

Q.—*Would you suggest a method to quiet a very irritable child suffering from pink disease ? It has the typical rash all over its body. Chloral hydrate and phenobarbitone 1/2 gr. (32 mg.) have had no effect. The parents are getting no sleep, and are becoming desperate.*

A.—In the first place remove the parents' despair by explaining why the child is miserable. They will be encouraged by this. Tell them that the child is suffering from an intolerable burning, itching sensation which is most exquisite in the fingers, toes, tongue, and perianal area ; that the disease will run its course in three to six months ; that the child's recovery will depend on the constant care and nursing which they themselves give it and which they can give far better than any hospital. Give them heart by saying that when the child recovers the credit will be entirely theirs. If the mother is losing too much sleep (which is not probable, because the sleep requirements of mothers fall to very little when their own children are ill) get the granny or a neighbour to come in and help her from time to time. Clothe the child with linen or silk next to the skin. Do not give hot drinks. Feed the child on ice-cream if necessary. Walk the floor with the child, and wheel it out of doors in a pram as much as possible. Use cooling lotions and frequent cool baths. Explain that it is satisfactory if the child sleeps only in short periods of twenty or thirty minutes ; that will suffice. When you have done all these things, consider the use of sedatives, but use them wisely. A child ill with pink disease may get bronchopneumonia if drugged too much. Every other day or so give enough barbiturate to make the child sleep for about two hours. Certainly 1/2 gr. of phenobarbitone will not suffice. Try a bigger dose. Finally, do not admit the child to hospital.

Trigeminal Neuralgia

Q.—*A woman aged 65, who was surgically relieved of an intractable tic douloureux ten years ago now has a recurrence on the other side. As she will not contemplate surgery again, can you inform me of any recent advances in medical treatment ?*

A.—There are no recent advances in the medicinal treatment of trigeminal neuralgia. For the purely temporary relief of a paroxysm of pain there is, of course, the inhalation of 5 to 10 drops of trichlorethylene from a handkerchief. This has to be done cautiously as it may produce syncope. Surgical treatment offers the only permanent cure, and the newer techniques are certainly an improvement on the old. The physician might well feel justified in pressing surgical treatment in such a case. Alcoholic injection of the nerve may be regarded as a rather inadequate compromise.

Sexual Frigidity

Q.—*A happily married woman aged 36, with two children, complains of complete absence of libido. She is physically normal and healthy, and there is no apparent psychological cause. A prolonged course of chorionic gonadotrophin has not improved the condition. Is there any safe aphrodisiac I can give her, and would it be suitable for use in cases of male impotence ?*

A.—Although a psychological cause for the frigidity is not apparent, a physical cause is not likely, for if there was an endocrine upset there would be other evidence of its presence. The question does not state whether the frigidity has always been present or whether it is a recent development. Among the possible factors to be looked for are fear of pregnancy and an unsatisfactory method of contraception. Drugs reputed to have an aphrodisiac action are rarely of any value, and the same is true of hormones except where there is gonad deficiency. In such a case oestrogens for the female, and testosterone for the male, are preferable to gonadotrophin.

Cholecystography after Cholecystitis

Q.—*Is cholecystography contraindicated within two to three weeks after an acute attack of cholecystitis, on account of possible damage to the liver ?*

A.—As a rule cholecystitis is a local infection ; the liver is not much affected unless there is accompanying cholangitis. Therefore there should be no risk of damaging the liver by taking a cholecystogram three weeks after an acute attack of cholecystitis.

Undulant Fever

Q.—*I have a patient with undulant fever on whom two pathological investigations have been made. The first pathologist found a titre of 1/125 for Br. melitensis, Br. abortus nil ; the second (ten days later) found titres of 1/500 for Br. abortus and 1/150 for Br. melitensis. In view of these conflicting reports, how can I cure the fever ?*

A.—Would the questioner have been in any way in a better position to cure this patient if the two reports had agreed ? The treatment of undulant fever due to either species of *Brucella* is notoriously unsatisfactory. They are usually highly resistant to penicillin ; even streptomycin has given disappointing results, in spite of *in vitro* susceptibility to this drug. A course of one of the sulphonamides is the only appropriate form of chemotherapy : this often appears to shorten the duration of the disease. If the infection was acquired in this country it is almost certainly due to *Br. abortus*, and the findings in the second report quoted are typical—a high titre for the causative organism and a lower for the other, owing to their close antigenic relation.

Treatment of Cataract

Q.—*Is there any hypodermic treatment, recognized or unrecognized, for cataract ?*

A.—Presumably hypodermic treatment means general systemic treatment by injection. There is no recognized medical treatment of cataract, administered either orally or by the hypodermic route. As for unrecognized methods of

general treatment of cataract, these are as numerous as the practitioners who administer them. They have no scientific basis. The least confused would appear to be some method of antigen treatment based on the injection of lens matter. A fairly prevalent method is the use of sodium iodate drops. There is no reason to believe that this is any less futile than the other methods.

Keloid Formation and Skin-grafting

Q.—*A girl aged 13, who is having skin grafts, has proved to be a keloidal subject. The donor sites have formed such poor tissue that it is doubtful whether further grafts can be taken. Have skin grafts been successfully taken from one person to another?*

A.—The patient whose donor site has become keloidal presents a problem well known to all plastic surgeons. As a rule donor sites of split-skin grafts can be used several times, but where keloidal tissue has formed—and this may occur even where the thinnest skin grafts are removed—great difficulty may be experienced in obtaining enough skin. Usually with the passage of time the keloids subside. Carefully graduated doses of *x* rays are useful. Skin grafts from another person do not help, for, though they occasionally take for a short period, they usually disappear. Cross-grafting of skin is not satisfactory except in the case of identical twins.

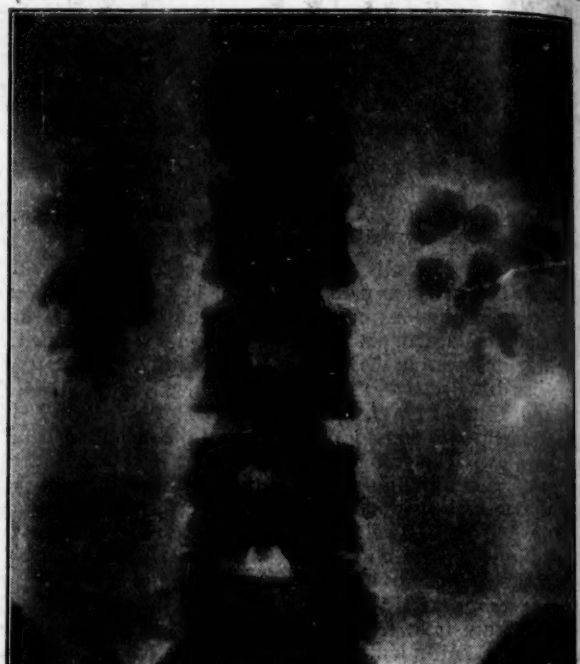
Urticaria

Q.—*A female aged 58 had urticaria three years ago, lasting nearly two years. Skin tests failed to show sensitivity to any food. Recently another attack started. Can she be desensitized? What treatment would you recommend?*

A.—Search should be made for a focus of infection. Failing this, stilboestrol is well worth trying. In the allergic type, foods and drugs are the commonest causes. The most likely foods are egg, milk, wheat, fruits, and fish. As skin tests are unreliable in urticaria, food sensitivity can be tested only by trial dieting, excluding from the diet the food or foods suspected for a few weeks and then restoring them and noting the effect. If a specific allergic cause is found, elimination rather than desensitization is the treatment of choice. Non-specific treatments are by vitamin K and autohaemotherapy. "Benadryl" in doses of 50 to 150 mg. gives symptomatic relief in about 80% of cases, but its tendency to cause drowsiness necessitates the first few doses at least being taken at home, preferably in the evening.

NOTES AND COMMENTS

Cystine Stones.—Dr. W. M. CHESNEY (Birmingham) writes: In the answer to the question on cystine stones (May 31, p. 794) it is stated that there is no known method by which they can be dissolved after they have formed. The following brief account of the complete disappearance of a massive collection of bilateral cystine calculi may be of interest. *X* ray of the urinary tract of a woman aged 25 in October, 1934, revealed a massive collection of bilateral renal calculi. She was then seen by two distinguished urologists, who diagnosed cystine stones and prescribed a low protein diet and alkalinization of the urine. They also with some hesitation decided that an attempt should be made to remove the stones from one kidney. From the *x*-ray film the right kidney appeared the more operable, and in March, 1935, one of them removed during a tedious operation about twenty stones from that kidney, reluctantly leaving a considerable number behind. *X* ray four months later (July, 1935) showed a "mould stone shadow in the left kidney pelvis and multiple stone shadows in the right kidney. . . ." Subsequently a skiagraph was taken every year up to 1939 (inclusive), and again in January, 1941, and in October, 1944. The films showed a progressive diminution of the calculi up to 1939, when the right side was reported by the radiologist as practically clear and the original large mass on the left had become a very small shadow. On the films of 1941 and 1944 there was "no shadow present to suggest a urinary stone." I am in possession of all the *x*-ray films except the first (October, 1934), which was unfortunately lost at the time of the operation. Dr. Harold Black, of Birmingham, was the radiologist throughout, and the sentences in inverted commas are extracts from his reports. Reproduced is the film of July, 1935 (four months after operation). The stone shadows on films of later date are so small as to be indiscernible on reduced photographic reproduction of the films. The patient adhered more or less to a low-protein diet until the onset of the late war, when she practically abandoned it. Where a choice in diet is still available, she generally selects the articles of lower protein content. At first she took a pot. cit. and sod. bicarb. mixture and frequently tested her urine for alkalinity. For several years now she has taken sod. bicarb. only, usually two level teaspoonfuls daily, her urine being tested for alkalinity occasionally.



Presumably the prolonged alkalinization of the urine was the chief operative factor in the dissolution of the calculi. It should be added that she became pregnant (first pregnancy) in 1938, refused early evacuation of the uterus (advised as a result of renal function tests), had a normal pregnancy, and gave birth to a healthy female child in 1939.

Discussion on Homosexuality: Correction.—Dr. H. MANNHEIM (London, W.C.2) writes: My attention has been drawn to a report on the joint meeting of the Medico-Legal Society and the Section of Psychiatry of the Royal Society of Medicine published in your issue of May 17, 1947, on p. 691, where I am quoted as having stated that homosexuality came under ecclesiastical law "from Henry VIII until 1763." I am afraid the words which I have put in quotation marks are a misquotation. What I have actually said was that homosexual activities had been punishable in this country only as an ecclesiastical crime *up to the time of Henry VIII (1533)*. I did not mention the year 1763 at all.

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